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CUTTER LABORATORIES, 1897-1972: A DUAL TRUST

VOLUME I

Robert Kennedy Cutter

Building and Guiding a Family
Pharmaceutical Firm

An Interview Conducted by
Gabrielle Morris

Copy No. 1



Robert Kennedy Cutter
ca. 1954

Robert Kennedy Cutter
ca. 1954



This profile of Dr. Bob was written by Frances Davis,
executive secretary to members of the Cutter family for over 38 years.
It was first printed in *The Microscope*, employee publication
for Cutter Laboratories, Inc.





A TRIBUTE TO

All knew his particular brand of TLC—real interest, willingness to serve and to do more than his share from organizing a mailing list to heading up the organization itself, but most of all just contributing to the plain fun of belonging to the organization. Wherever Dr. Bob was, there was friendliness, liveliness and laughter—and he swept others along with his enthusiasm and warmth, whether at work or play.

Robert Kennedy Cutter (1898) and the Laboratories (1897) were born about the same time and in the same place—Fresno, California. When the family business was moved to the Bay Area in 1903, Berkeley became his home and here he went to school. His activities at Berkeley High were forerunners of what was to come—he managed the weekly paper and the school annual and served as president of the student body.

After receiving his Bachelors and Masters degrees from the University of California, he earned his M.D. from the Yale School of Medicine, graduating with honors. He returned to the Bay Area to serve his internship in San Francisco Hospital and, after a brief stint in Oakland as a practicing physician in the field of allergy, he joined the executive staff of the Lab in 1926 as Assistant Medical Director. From then on pharmaceutical manufacturing was his life's work. Named General Manager in 1930, he became President in 1945 and Chairman of the Board in 1962, a post he held until his death.

In 1922 he married his beautiful childhood sweetheart, Virginia White. They had three sons: Rob, Jr., Dick and Dave. Dick is Plant Manager for Owens-Illinois, Inc., in Oakland. Rob, as Director of Research and Development Coordination, and Dave as President, are both with the Lab.

To Dr. Bob's delight, he became swamped with grandchildren: Rob's two—Jan and Steve; Dick's five—Susan, John, Paul, Larry and Lisa; and Dave's five—Dave, Jr., Tom, Bill, Steve and Mike. Several years after Virginia's death, in 1969, Dr. Bob was happily married to lovely Alice Knapp.

When Dr. Bob became a "permanent" employee, he was really just rejoining the work force for, from the time he was old enough, he had been working after school, on Saturdays and during vacations doing just about everything there was to be done—delivery boy, office boy, shipping clerk, as well as sweeping out the stables, gathering pollen, washing lab vessels, in fact working anywhere out in the plant

where a pair of hands were needed. So every nook and cranny of the whole laboratory was familiar to him.

According to the late C. M. Twining, long-time associate of Dr. Bob's father, he became a jack of all trades. In quick succession and sometimes juggling many jobs at once, he supervised the pollen work; revised literature and direction sheets; did development work on Semple rabies vaccine and a line of chemical ampoules; researched labeling and filling machines; urged the establishment of a print shop; redesigned the Lab's most important container, a syringe package, eliminating practically all the difficulties that had surrounded it throughout its previous thirty years; and worked out the design of the Saftiflask® container when production of intravenous solutions started in 1932. This was the first departure from "biologicals exclusively" and was a giant step forward for the Lab.

Then the death of his father in 1933 threw Dr. Bob into the general management of the company on a sink or swim basis. That he swam is attested by the Laboratories as we know it today.

But it wasn't easy—he had had no business training and the extension course at Cal and business seminars knew him well. And he worked—and how he worked. On most days he was first in an last out, and on Saturdays and Sunday he was no stranger to his office. As the company grew, he saw to it that he grew too—and he urged all around him to grow, to be ready for the challenges he knew were ahead as Cutter took its place in the burgeoning pharmaceutical industry.

It was almost a religion with him—and he preached it to others constantly—to be open-minded about change, to be receptive to new ideas, to question what a thing was done the way it was and to look for a better way, to look hard for ways to make something work rather than simply saying it couldn't be done.

In this atmosphere, Cutter flourished and grew—breaking new ground in many fields, establishing some firsts—Alhydrox® our patented method for the slow release of an immunizing agent into the tissue D-P-T®, the triple vaccine for childhood diseases; Viracine®, a tissue culture vaccine; Gonadin®, a fertility hormone; and plasma fractions, to name a few.

No detail was too small for his attention when it concerned the Lab or its people. He managed his time and devised systems and checks that kept him in touch with the many, many facets of the business—easily and quickly so as not to

He left early one afternoon with a wave and a wide grin, eager to be off on a pack trip in his beloved High Sierra, calling out "See you in a couple of weeks." Unbelievably, he never came back.

When it was learned that Dr. Bob had been helicoptered from the back country to a hospital in Yosemite Valley, that he had a high temperature from a serious infection, no one could believe it was our Dr. Bob. You just didn't associate illness with this energetic, younger-than-his-years man. But he was ill, dangerously ill.

His losing fight against the viral pneumonia which had struck him down revealed the wonderfully generous and gallant gift he had made to his family and friends—he had not let them know, and so had kept them free from worry about him, that he had a seriously deteriorating blood picture, that his white count had fallen to dangerously low levels over the past year or so. This was what robbed him of a fighting chance to overcome his illness and death claimed him on August 9, 1973.

That he could be so quickly gone was stunning—he had been so joyously alive and had so generously shared that joy. He will be missed tremendously, now and for a long time to come, not only by those near and dear to him but by those who made up his "unofficial" families: His Lab family—the people at Cutter wherever they might be; his backpacking cronies; his duck hunting buddies; his legions of friends in the pharmaceutical industry; his close friends and associates in his many other activities—wine societies; the Grandfathers Club; his camellia associates; his Berkeley High School Reunion group; his fishing pals, The Rover Boys; the Children's Hospital Medical Center, to name a few.

DR. BOB CUTTER

encroach too much on the time he needed for his management duties. He could do the seemingly endless number of thoughtful, nice things he did for others because he acted rather than engaging in wishful thinking about what he would like to do. He developed friendly, gracious though brief letter-writing to a fine art, sometimes no more than a sentence—maybe even only one or two words, but it got the job done for him in expressing congratulations, sympathy, just a greeting or passing something of interest along to the reader.

He kept his writing style simple and forthright and became somewhat of a celebrity because his letters to Cutter stockholders in his down-to-earth, candid style differed so radically from most if not all the others. If he felt strongly about something, as he did about letter-writing, he sat down and drew up a manual setting forth guidelines for others to follow and then, every so often, would check back to see if it needed updating or if the folks needed reminding to use it.

From his family background he inherited a strong sense of moral responsibility both for himself as an individual and for the company he headed which could so greatly affect the public welfare.

The latter wasn't an easy burden to live with but how well it had been carried surfaced when, in 1955, the Lab faced its trial by fire in what became known as the 'polio incident.' In the face of a full-fledged federal investigation, the name Cutter was held in such high regard in the medical field that letters of support flooded in by the hundreds from doctors, pharmacists and hospitals; and the highest vote of confidence in Cutter integrity in general and Dr. Bob's in particular came from competitors when the American Pharmaceutical Manufacturers Association broke its succession pattern to name Dr. Bob its president-elect.

His mettle was tested again and again over the years as he led the Lab back from this costly episode, and he found the strength to make and stick with some terribly difficult decisions which he felt were necessary for Cutter to become a strong and growing company again.

He was widely known and greatly respected throughout the pharmaceutical industry, which has paid him high tribute: From the FDC REPORT, an industry newsletter: "One of the most trusted execs in the pharmaceutical industry, Dr. Bob, as president of APMA, was instrumental in the merger that created the Pharmaceutical Manufacturers Association, on whose board he served from

1958 to 1971. He was one of the great men who participated in the building of the U. S. pharmaceutical industry." Several of his long-time associates in the industry said they had never heard an unkind or derogatory remark made about him—a rarity, indeed, in the business world. All commented on how much his friendliness would be missed. Younger men spoke of how kind he had been to them when they first appeared on the pharmaceutical scene.

The first of two honors greatly treasured by Dr. Bob was receiving Yale's Parker Prize for "the graduating student most likely to succeed in the practice of medicine" and the other was being named California Manufacturer of the Year in 1966 by the California Manufacturers Association, an organization which he headed in 1951-52.

Again, he was practicing what he preached—be a doer, not a side-liner, in any organization you join. He thought it important to support and belong to community, civic and industry groups but he sincerely believed an individual was enriching himself when he actively participated.

Dr. Bob never stopped being an innovator and gadgeteer no matter how great his responsibilities or how busy he became. When he thought he saw a need, his instinct was to try to do something about it.

An avid hunter and fisherman, in the late 1930s he developed a snake bite kit so small it could fit in a pocket because the ones then available were so large they were always left behind in camp or in a car and not at hand when needed—and he stayed involved in the many changes and improvements which took place over the years.

He participated in the development of an insect repellent to make the duck hunting and back packing he loved so much more bearable. Both these products gained wide acceptance and became the forerunners to the important Consumer Products line. He held many patents alone and in conjunction with others for improvements and additions to appliances and administration sets for the solutions line.

Once, in reminiscing about his father, Dr. Bob commented he had always been very grateful for the many things his father had taken time and trouble to expose him to as he was growing up—and not necessarily just things which interested or were enjoyed by his father. Dr. Bob said he had tried to express his grati-

tude by doing the same for his sons and grandchildren. He did much more than that—he did this for everyone—and particularly for those who made up his many "unofficial" families. He loved to share and got great joy from sharing.

Many a camellia is lovingly tended because Dr. Bob sent several plants around when he heard a new home had been built or because he had shared the excitement he felt at the prospect of at last producing a trace, just maybe, of fragrance in these lovely flowers. Many a tree, or shrub, or flower, or songbird is recognized and enjoyed because Dr. Bob stopped along the trail or in a garden and called attention to the things that made it easily identified.

Many a sip of wine—and of California wine in particular, is enjoyed a little more because he loved to "educate" people to wine-tasting. Many a neophyte became a better flycaster because of Dr. Bob's interest and coaching on a fishing trip. Many a back packer owes a great deal of comfort and a lighter pack to Dr. Bob's Sierra Pack List, first compiled for his own convenience and then passed along literally by the thousands when it worked out so well.

Many a meeting or affair was brightened by his infectious spirit of fun and great sense of humor—remember Old Timers Luncheons and United Crusade Rallies?—he always enjoyed himself and this enjoyment spilled over on those around him.

This list could go on and on but perhaps the spirit of this man who became affectionately and almost universally known as "Dr. Bob" is best expressed by a beautiful letter written after his death: "Perhaps more than is the privilege of most people, he leaves so much of himself to so many."



Playing musical chairs at Berkeley's 1971 United Crusade rally

Robert K. Cutter, Head of Lab, Dies

Dr. Robert K. Cutter, chairman of the board of Cutter Laboratories in Berkeley since 1962, died in Alta Bates Hospital yesterday. He was 75.

A native of Fresno, where his father, F.A. Cutter Sr., founded the pharmaceutical firm in 1897, Dr. Cutter was a horticulturist and an avid outdoorsman.

Educated in Berkeley schools, Dr. Cutter received his B.A. and M.A. from the University of California. He was graduated cum laude from the Yale University School of Medicine in 1923.

He was awarded the Parker Prize as "the graduating student most likely to succeed in the practice of medicine."

Dr. Cutter practiced in Oakland from 1924 through 1926, becoming assistant medical director of Cutter Laboratories in 1926 and general manager in 1930. He became its president in 1945.

While president of Cutter Laboratories, he was elected president of the California Manufacturers Association in 1951-52. He had been a director for many years and treasurer for several years before his election.

In 1956 he was elected president of the American Pharmaceutical Manufacturers Association.

Another honor came in 1966 when he was named "California Manufacturer of the Year." Cutter Laboratories was cited for making a "major contribution" to the state's industrial progress and for demonstrating an active interest in promoting the free enterprise system.

Dr. Cutter held various patents on equipment used in mass intravenous injection and on snake bite treatment. The firm, which moved to Berkeley in 1903, was one of the pioneer manufacturers of penicillin during World War II.

He also served on the board of the Health Information Foundation, Trustees for Conservation, and the Children's Hospital Medical Center of the East Bay.

And his interest in the out-



DR. ROBERT K. CUTTER
Received many honors

in the Sierra Club, the National Rifle Association, the Audubon Society, Ducks Unlimited and the American Camellia Society.

Dr. Cutter was married in June of 1971 to the former Alice McCarthy Knapp of Oakland, associated with the Oakland Museum and a long-time volunteer with the Children's Hospital Medical Center of the East Bay. His first wife, the former Virginia White, died several years earlier.

In addition to Mrs. Cutter, Dr. Cutter is survived by sons Robert K. Cutter Jr. of El Cerrito, Richard W. Cutter of Lafayette, David L. Cutter of Lafayette, and stepson David Knapp of Concord; a brother, Edward A. Cutter Jr. of Oakland; and 12 grandchildren.

Graveside services were to be held today at Sunset View Cemetery, El Cerrito.

The family prefers contributions to the Children's Hospital Medical Center of the East Bay.

San Francisco Chronicle
Friday, August 10, 1973

Laboratories Head

Dr. R. K. Cutter Dies at 75

Dr. Robert Kennedy Cutter, 75, board chairman of the Cutter Laboratories, died yesterday at Alta Bates Hospital in Berkeley. He succumbed to a respiratory infection which struck him ten days ago while he was on a trip in the High Sierra.

Born in Fresno, Dr. Cutter received a medical degree at Yale University in 1923 and the following year entered the family's pharmaceutical manufacturing business. The firm had been established by his father, Edward Ahern Cutter, in Fresno in 1897 and moved to Berkeley a few years later.

Dr. Cutter had a lifelong interest in outdoor activities as a fisherman, hunter and

backpacker, and was a member of the Sierra Club. He was also affiliated with many professional organizations, and was a past president of the American Pharmaceutical Manufacturers Association and also of the California Manufacturer's Association. In 1966 he was named Manufacturer of the Year by the latter organization.

He was elected president of the Cutter Laboratories in 1945 and became chairman of the board in 1963.

Surviving Dr. Cutter are his wife, Alice McCarthy Cutter, of the family home in Berkeley; three sons, Robert K. Cutter Jr., Richard W. Cutter and David L. Cutter; a step-son, David



DR. ROBERT CUTTER
He was an outdoorsman

Knapp; a brother, Edward A. Cutter Jr., of Oakland; and 12 grandchildren.

Graveside services will be held at 1:30 p.m. today (Friday) at Sunset View Cemetery in El Cerrito. Russell C. Moore, a worker-minister in the Presbyterian Church, who is employed at Cutter Laboratories, will officiate.

Contributions to Children's Hospital Medical Center of the East Bay are preferred.

CUTTER LABORATORIES, 1897-1972: A DUAL TRUST

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INTRODUCTION

The story of Cutter Laboratories, California-based pharmaceutical enterprise, is in many ways a classic of the American economic system. As such, it was high on the list of corporations whose history the Regional Oral History Office of The Bancroft Library wished to document for its growing collections of business and science records. From father to son to grandson, the firm grew from making veterinary remedies in the family pharmacy in 1897 to a worldwide medical supplies corporation listed among the nation's leading businesses seventy-five years later.

The study is composed of narrative interviews with six past and present corporate executives and was conducted at a time which turned out to mark major change in the company's life. A technological crisis occurred toward the end of interviewing, board chairman Dr. Robert Cutter died suddenly before he could review the transcripts of his memoir, and four months later an agreement was reached for Cutter Laboratories to become a division of a leading German chemical enterprise. Therefore, this study became indeed a history, recording an era now completed.

These narratives, by two generations of company leadership, not only reflect the growth and development of pharmaceutical industry technology, but also close links with significant national events, not the least of which is the present trend toward international economic organizations. The response to these events in the years reviewed is a striking study in such personal and entrepreneurial traits as talent for selecting and working with people, ingenuity and flexibility, and ability to recognize and utilize opportunity.

Arrangements

In April, 1972, Dr. Robert Cutter contacted the library to offer his reminiscences of boyhood fishing and camping trips in the Sierra Nevada to a project being conducted by the Sierra Club. In the course of recording that memoir, Dr. Cutter frequently referred to an extensive collection of photographs of the era, and also to the informal record of his company's history which he had assembled in the Old Timers' Room.

Dr. Roger Hahn, professor of the history of science, confirmed the judgement of the interviewer that these papers and memorabilia were extremely valuable research materials. Arrangements were then made for the Regional

Oral History Office of The Bancroft Library to undertake a series of interviews with selected members of the firm to supplement and enrich the historical materials.

In preparation for these discussions, the materials in the Old Timers' Room were reviewed, many of them stored in the capacious oak rolltop desk which had been used for years by the founder, Edward A. Cutter, and at which the interviewer was pleased to work. The room itself was comfortably decorated in Victorian style and occasionally doubled as a conference room. A freshet of additional papers and photographs arrived in the Old Timers' Room from senior employees in response to an announcement in the company newspaper, The Microscope, that the study was underway. The continuity of this rich store of historical materials will be maintained under the eye of E.A. Cutter, III, secretary and counsel to the Laboratories.

The major portion of the narration is by Dr. Cutter himself, who was chief executive of Cutter Laboratories from 1926 to 1962 and then chairman of the board. Dr. Bob, as he was known throughout the company, referred many questions about production developments to his brother Ted, E.A. Cutter, Jr., who was executive vice-president during the expansion surge of World War II. Ted also fills in the story of their brother, Fred Cutter, who was president from 1962 until his untimely death in 1967. The family narrative is then picked up by David L. Cutter, Dr. Bob's youngest son, who became the fourth president while still in his thirties and became chairman of the board in 1974.

Their views are corroborated and balanced by the recollections of Howard M. Winegarden, hired while a graduate student in physics to set up a research department in 1924 and director of research and production until his retirement in 1963; Harry Lange, who joined the firm in 1946 following studies by Booz Allen and Hamilton suggesting a need for specific financial managerial skills; and Ernest T. Gregory, who implemented the decision to open the first branch plant, in Chattanooga, Tennessee, in 1950, and was director of new plant operations and engineering at the time of the interview.

The participants were all cooperative, candid, and informative. They were selected, in consultation with Dr. Bob, to give a broad perspective on the nature of the leadership and range of activities which have gone into building Cutter Laboratories. These were hard choices to make, since any number of other individuals would also have valuable information and viewpoints to share, particularly the other members of the Cutter family in executive positions. Dorothy Watkins and Frances Davis, secretaries to the Cutters, were most helpful with details and interested in the project during the interviewing, as were other employees encountered. Rennie Nelson, David Cutter's secretary, was equally helpful during final production of the manuscripts.

Scope

Discussions with Richard Abrams, U.C. professor of economic history and Edwin Epstein, associate dean of the business school, determined that topics significant to the present generation of students included a renewed interest in the nature of entrepreneurship, with particular reference to decision-making; the interrelations of business and government; the distinction between pure and applied research; the impact of technology on business development; and corporate social action. Each of these topics was covered in varied depth with one or more interviewees.

Most of the major areas of company contributions to scientific knowledge were touched on in the participants' discussions of specific product lines. Detailed records of this work, and of technical developments in production and administration, have been maintained in the research department's files and company archives stored at the Berkeley plant, offering a possibility for fruitful research in many specific aspects of company operations.

Findings

In 1939 and 1940, the critical events in the early years of the Laboratories' existence were reviewed by Charles M. Twining, who had been E.A. Cutter, Sr.'s right-hand man since Fresno days, in a series of historically observant pieces for The Microscope. The first four chapters of Dr. Bob's memoir correspond to the stages set out by Mr. Twining: the origins of the enterprise in E.A. Cutter's response to the needs of ranchers in the San Joaquin Valley at a time when no one in the area was manufacturing veterinary products; years of rapid growth after moving to Berkeley to set up a pharmaceutical laboratory in a center of commerce; achievement of financial stability as the quality of Cutter products, reliable supplies in time of epidemic fears, and hard-working salesmen established the company's reputation; and arriving at maturity with the beginning of formalized cost accounting and budgeting and of production of hospital solutions, undertaken at the urging of young Dr. Bob whose professional training gave him an inkling of their potential for medical care and for the future of the company.

In those early years of the century, public health was also in its infancy and the dangers of epidemic among animals and men were real. Each threat meant a challenge to the ingenuity of the men in the laboratory and to the ability of the production department to "get out the wash." Cutter Laboratories made significant contributions to veterinary knowledge, as well as to the economic health of an agricultural state, with their anthrax and hog cholera immunization products. The San Francisco Fire of 1906 brought

an urgent need for diphtheria and tetanus preventive supplies and the influenza outbreak following World War I for respiratory vaccines, both calling for round-the-clock operation at the laboratories and making the case for continuous increase in production capacity to permit stockpiling of emergency supplies.

When young Bob Cutter and his brothers were working at the lab weekends and vacations in the Twenties, becoming familiar with the company, there were no more than a hundred employees. Two and three members of many families were employed, including a number of young people and women working part-time. Mrs. E.A. Cutter, Sr., and her sisters pitched in when there was an urgent need and E.A. Cutter, Sr.'s sister, Aunt Norah Sattin, kept the books, cajoling suppliers when payments were delayed, deciding who would get how much of their paycheck when times were bad, and keeping a careful account of the gradually increasing flow of cash maintained through a cordial working agreement with the First National Bank of Berkeley, a relationship which was to continue through that bank's merger with Wells Fargo.

In 1938, intravenous solutions were introduced. The technology was so new that Dr. Bob himself spent a good deal of time in the shop, working out designs for flasks, whittling plugs and adjusting tubing, developing the patented Saftiflask* which ultimately led to an entire line of Saftiflex* administration equipment, now a major portion of Cutter Laboratories' sales. The plant machinists also distinguished themselves in devising equipment modifications which continually improved quality and productivity. This skill in adaptation and development of specialized equipment and production techniques has continued to be one of the most interesting aspects of Cutter capability. During this period, E.A. Cutter, Sr., became ill and increasingly unable to manage the business, so Dr. Bob perforce taught himself the whole range of management skills, on the job. One of his earliest major decisions was to institute an employee pension plan in 1934, prior to enactment of federal Social Security legislation, and to announce that he was also studying a medical care program for employees.

Mr. Twining's observations ended with the year 1940; Cutter Laboratories achieved its first million dollar sales year in 1939 and the foundation of production know-how and research ingenuity was laid for a tremendous surge of growth during World War II and the emergence of the firm as a leading national corporation.

From 1942 to 1945, the laboratories not only continued their full production of hospital solutions, much of it shipped to the armed forces in the Pacific, they also set up two completely new production lines: one for processing blood and one for penicillin, requiring equipment and space that was only obtainable through the assistance of the federal Defense Plant

Corporation and, in the case of blood processing, a priority second only to the Manhattan Project. With customary foresight, Dr. Bob had, in 1940, acquired a vacant plant which happened to be next door to the lab. He chuckles, recalling that his associates thought this was folly.

Ted Cutter speaks of himself as the ramrod who supervised the complex negotiations, effort and coordination needed to get these processes on the line. His right-hand man was sales manager Preston Snow, who later wrote a remarkable account of the first year of blood processing, which began with the almost offhand receipt of a military contract for whole human blood. Hardly was this phase in operation before research and production people regearred part of the operation to separate albumin from the whole blood for Navy use, later adapting again for production of fibrin foam. Equally extensive modification was required on the penicillin line, which began with bottle production to which deep tank facilities were added in a completely new building. On the side, super-safe and classified facilities were arranged for packaging plague vaccine prepared jointly with Dr. Karl Meyer at the Hooper Foundation in San Francisco.

At the end of the war, Cutter annual sales were nearly six million dollars and production capacity had doubled. Dr. Bob and his brothers could look around and see that they had performed as equals with the largest firms in the industry, functioning on a larger scale than ever before, with the assistance of the government. The challenge was to maintain this momentum. Although there was some concern in California that the depression of the Thirties would return, Ted comments that the laboratories had learned a lot in working on wartime contracts and that demand for many of their products remained strong.

A number of major decisions were made at this time, although Dr. Bob recalls that he was cautious about setting up a rigid long-range plan, since it is impossible to tell what unexpected events may occur to require a change. One of the hardest decisions for any organization to make, he notes, is to discontinue a major product or operation; however, the bottom dropped out of the penicillin market, so, in spite of the capital investment, the laboratories discontinued production. Equally hard to make is a decision which goes against a trend in an industry; Dr. Bob cites his intuition as a physician that research on blood fractions had only just begun (and that, in 1973, major discoveries were still to be made) as responsible for Cutter being the only company in the nation to stay in this field from the beginning.

To assist in this evaluation period, Booz Allen and Hamilton were retained to do a management study. Since he had a daughter at Stanford, Mr. Booz himself came out from Chicago to lend a hand, complimenting Dr. Bob on the quality of his executives and the fact that they had excellent

assistants, although he did point out areas where he felt additional skills were needed. Several participants in this study indicate that the recommendations generally confirmed the sense that the laboratories should diversify and that outside financing should be sought.

Following up these suggestions, Harry Lange was brought in as the first controller, T.R. Sandberg and Ernest Gregory in operations and engineering, and several men with recent research training and experience in other pharmaceutical firms. Lange and Gregory add valuable insights to this study on the nature of progress in their two areas. They also comment on the values and hazards of working for a firm in which family leadership continues strongly.

As with every aspect of progress, each medical advance has been accompanied by its own hazard. Blood processing must guard against hepatitis, intravenous solutions are susceptible to pyrogens, polio vaccines may produce illness in highly sensitive individuals. As Cutter Laboratories grew, it was inevitable that the possibility of the occurrence of a problem inherent in the nature of the business would increase. When it did occur, it was met with a forthrightness and fortitude which resulted in a stronger position for the company. In 1948, visible contamination was discovered in certain dextrose solutions, the cause of which could never be determined. The Old Timers' Room contains an instructive file of all the steps that were taken to recall the entire lot before the federal authorities' request, to keep district managers informed of events, and to maintain communication with company representatives in Washington about cooperation with all interested parties. Various production improvements were instituted, and the sharp though brief setback strengthened the decision to establish a modern new solutions plant in Chattanooga, close to a major share of the market.

Because of earlier success with tissue culture for veterinary products and in supplying gamma globulin for Polio Foundation research, Cutter was one of six firms selected to develop the Salk vaccine. The nation's hopes for the vaccine became a public health disaster when several dozen people contracted the disease after receiving the vaccine in 1955. In spite of successful broad-scale tests under government supervision, quality standards were found insufficient to protect highly sensitive individuals. Because Cutter had produced the largest quantity of vaccine used, the attendant publicity and litigation focussed on them, even though the laboratories were absolved of negligence by the courts and retained the confidence of the industry, hospital customers, and individual physicians. At the time, several secretaries were kept busy answering the flood of mail on the subject.

The response to this challenge, too, was major innovations to strengthen the corporation. Marketing procedures were revamped and sales grew from just over ten million dollars in 1957 to thirty million dollars in 1962, an

accomplishment Harry Lange modestly calls "not as good as it might have been." He also describes his successful negotiations to secure additional financing and completion of plans to list company stock on the American Exchange. With this broader capital base, several carefully selected smaller firms were acquired, followed by construction of two additional branch plants.

By an ironic twist of events, as the transcripts of these interviews were being edited, problems again struck the laboratories' solutions production, this time at the Chattanooga plant, which Ernest Gregory had described as "aging" in terms of technological development; and the federal government was preparing tighter regulations on collection of blood supplies due to continuing difficulties with hepatitis, which seemed likely to affect Cutter Laboratories. The reasonable prediction, based on past experience, is that Cutter Laboratories will overcome these adversities, too, and come up with improved procedures which will be beneficial throughout the industry.

In each of these events, government agencies and regulations have been a significant factor. From the first years of the laboratories, Cutter quality was a benchmark used by the Public Health Service in setting standards. Federal programs enabled the company to acquire expanded facilities in the 1940s and encouraged foreign operations in the postwar years. In recent years, Food and Drug Administration regulations have played an increasing role in determining not only how but what products are manufactured. Although much of the increasing stringency relates to technical advances in quality control and medical knowledge, the Cutters comment that consumerism has also become a stronger influence. Additional requirements are reflected in greater expense in developing research discoveries into new products, and higher production costs, to the extent that in 1970, David Cutter announced that the laboratories had discontinued plans to move into the field of pharmaceutical specialties.

In David Cutter's description of the experiences which prepared him for the presidency of the firm, one can see a model of what might be called the contemporary managerial type of chief executive. With a background in corporate finance and planning, he has undertaken to consolidate and maintain the great gains based on his father's medical judgement to add intravenous solutions and blood fractions to the more general veterinary and human pharmaceutical products on which his grandfather based his hopes. He is particularly interesting in his remarks on improving interpersonal relations among his executives and maintaining clear, effective lines of communication between the many segments of the complex organization in his care.

Each of the Cutters in turn has been favored with ability to select able executives of great loyalty and to delegate to them considerable authority and responsibility. From E.A. Cutter's day, there has been

consistent concern for employees as people, and the belief that the laboratories should be friendly folk to do business with. An active employee association and long years of individual service in the company contribute to a noticeable family feeling. Many employees at all levels are active in community affairs. All of which may account for the fact that the company is rarely the target for abuse except for an occasional polemic from the left during a rare strike or turbulent local election. At this writing, it is interesting to note that the age spread of top management ranges from men in their late thirties to Ted Cutter in his seventies.

At the time of the study, Cutter Laboratories was a rewarding organization in which to observe a working relationship between science and industry and also a well-defined system of internal communications carefully related to areas of function. The six memoirs of this historical study provide valuable insights into several individual types of executive and their contributions to the corporation as a whole, as well as changes from one generation to the next. Each narrator is a likable person: able, hard-working, self-assured, and justifiably proud of his accomplishments. They have worked through complex difficult problems and initiated positive solutions. Their achievements have reflected and taken into account major changes in technology and economic conditions.

The company has always been well-known in its home town of Berkeley, California, a semi-suburban city of 120,000. Residents comment and speculate as freely about Cutter's activities as they do about that other local landmark, the University of California. To the considerable discussion of the 1974 corporate merger, the objective replied that, regardless of the 1973 hospital solutions crisis, the corporation continued to have sizable assets in managerial and technical competence, an enviable list of patents, a remarkable marketing structure, and, probably the most intriguing potential--research underway in plasma fractions and less glamorous substances such as the recently-announced Hyperab*, an immeasurable improvement over the painful and worrisome existing rabies vaccine.

As a division of Rhinechem, a division of Bayer AG, further changes can be expected in the methods and accomplishments of Cutter Laboratories as it moves toward the hundred-year mark. The nature of the decisions to be made by David Cutter, now in consultation with executives from Germany, which has an even older tradition of pharmaceutical leadership than the U.S., will continue to both reflect and, in some measure, influence the future of the American economic system.

Gabrielle Morris
Project Editor

30 July 1974
Regional Oral History Office
486 The Bancroft Library
University of California at Berkeley

INTERVIEW HISTORY

Robert Kennedy Cutter was interviewed to preserve his recollections of some of the professional and managerial adventures he encountered in building a small California pharmaceutical laboratory into a leading national corporation.

Dr. Cutter was the son of the founder of Cutter Laboratories, Incorporated, E.A. Cutter, Sr., and the grandson and great-grandson of physicians and community leaders in Quebec, Canada. Born in 1897, the year his father started the laboratory, Dr. Bob was educated at the University of California and Yale Medical School. He practiced medicine and assisted in the management of the firm until illness required his father to become inactive, and Dr. Bob became chief executive officer.

From 1926-1962, Dr. Cutter directed the adoption of modern business methods and the expansion of the laboratories into highly successful production of, first, intravenous hospital solutions and, later, increasingly complex blood fractions and a range of other innovative medical products. As chairman of the board, 1962-1973, he continued to keep daily office hours with the intention of being, as he said, "of some value without being a nuisance...the old order changeth, yielding place to new."

The first nine interviews of this memoir were conducted on October 2, 4, 9, 11, 17, 26, and November 2, 9, and 14, 1972, scheduled so they would not conflict with Dr. Cutter's duck hunting. Sitting on the leather couch in his corner office at the plant, Dr. Cutter would often chuckle as he turned to tell the interviewer a favorite anecdote. Occasionally he would refer to papers from the Old Timers' Room or show the interviewer an early sample of containers or packaging he had designed for Cutter products. Other members of the firm were interviewed next and then a concluding interview with Dr. Cutter was recorded on April 11, 1973.

At that meeting, Dr. Cutter spoke of the wisdom of grooming a successor and mentioned a forthcoming Sierra high trip, adding matter-of-factly, "I'm, of course, here on borrowed time now, so it's better for me not to change my plans for a trip.

"For their own benefit...you learn a lot more when you've made the goof yourself...they're going to have crises long after I'm gone! They'd better be able to handle them." As far back as 1948, "I tried to have as many different men as I could in the company who could be considered for the presidency...you can't have too many good men."

The edited transcript was delivered to Dr. Cutter's office in July, and had not been read before he left for the mountains he had enjoyed since boyhood. While there, he contracted a virulent illness and died within a few days. The manuscript was read and approved for final typing the following year by his son, David Cutter, after the company became a division of Rhinechem.

Though Dr. Cutter at age 75 was full of energy and interest in all aspects of the family firm, it seems possible that, as a good physician, he sensed that it was time to retell his favorite story and revisit his favorite high country; and that, as a wise manager, he was content that he had delegated the details of carrying on to carefully-chosen, reliable people.

Gabrielle Morris
Interviewer-Editor

21 April 1975
Regional Oral History Office
486 The Bancroft Library
University of California at Berkeley

1. ORIGINS OF THE ENTERPRISE: 1897-1906

From Cutter Laboratories' company publication, The Microscope, November, 1939

History of Cutter Progress

By C. M. Twining

THE MICROSCOPE feels honored to be able to publish such an interesting and worth while series of articles by Mr. Twining depicting the historical background of the Laboratory.

We hope in this little article, and some to come, to tell you the story of the Laboratory from its beginning in an endeavor to show you not only how the Laboratory has progressed, but that you may know some of the various phases through which it has gone and how its policies have been formed.

Now let's go back to the year one. Early in 1897 Mr. E. A. Cutter, who had a drug store in San Jacinto, which, as you probably know, is a small town in the San Jacinto Mountains south and east of Los Angeles, decided to open a drug store in Fresno as this was the home town of Mrs. Cutter's folk. It was his idea that it would be a fine thing to have a little clinical laboratory to serve the doctors in making their bacteriological examinations, blood counts, and the various other tests of like kind—and so the store was established at 1833 Mariposa Street in the center of town and the laboratory occupied a little room in the back part of the store. It was in this little room, about 8 feet by 8 feet that the infant laboratory was born.

In the course of that first year the amount of work done was not very great, but it demonstrated the desirability of having something of the kind in the central part of the state. Also, it was probably the first clinical laboratory in the San Joaquin Valley.

You must remember that in that day the methods used were rather sketchy and were nothing to be compared with work at the present day, neither in the number of things done nor in their accuracy. The store itself, as a drug store, was a very great success as it was very

modern as of its day, and with the aid of the laboratory work done, which the physicians thereabout greatly appreciated, the prescription end of the drug business fared very nicely. The few animal tests that were made in connection with this clinical work were housed in a packing box or two out in the back yard.

The combined bacteriologist, serologist, chemist and prescription clerk dovetailed his work satisfactorily enough to give the little laboratory the limited time necessary,

...and April, 1940

Late in 1902 and early in 1903 Mr. Cutter spent some time in the selection of a location for the laboratory. It soon became apparent that climatically, and from the standpoint of distribution, the San Francisco bay area had the most to recommend it, and a place of approximately 12 acres in Melrose, now a part of East Oakland, was selected. The owners of this piece, however, were unable to give us clear title to the property, and another selection had to be made.

Of the many places available we selected in Berkeley approximately 3 acres immediately south of Grayson Street at Sixth Street.

It seemed desirable that the office should be located in San Francisco, and so it was so located in the Rialto Building, Mission and New Montgomery Street, where we had one room, number 322, about 15 ft. x 18 ft. in size, which constituted the entire laboratory office and shipping department until 1906.

There was no gas, no electricity, no sewer. We pumped our own water of necessity, and it was some little time before we were even able to get a telephone. There was a boardwalk from San Pablo Avenue leading down Grayson Street to the property, requiring some dexterity in navigating it with the many loose boards present.

On this property we put up the original buildings, and in June, 1903, were ready to work in what we thought was a mighty fine layout.

Just one interesting item of the early work at this plant. The shipping was done almost entirely from the San Francisco office, and each Saturday I carried the stock in a suitcase, sometimes two of them, from the laboratory to the office. Our present shipping room boys will get an idea of the laboratory's growth by comparing this situation with that of the present day.

The Fresno Pharmacy

Morris: I thought that we might start with the fact that the laboratory began and you were born within a year of each other.

Cutter: Yes. Of course, I don't remember the very early history there in Fresno. I remember as a child--how old I would be, I don't know--going to the drug store where Dad had established the first ice cream parlor, sitting on the wire-backed chairs that were so typical of even the later-day ice cream parlors. And I remember going on upstairs over the drug store--this had been an apartment or a hotel or something previously--and seeing the guinea pigs, kept not in packing boxes as Mr. Twining has spoken of them, but my memory is that at least some of them were kept in the bathtub.

Then I remember going out to a place away from Fresno. This would be the place where they kept horses, which Mr. Twining speaks of as being there at Fresno when they could not go down to my uncle's and grandfather's ranch to get the bleedings from horses. Mr. Twining speaks in one of his columns of going down and bringing back this blood in suitcases, and that it was just too much of a trip going by train and coming back** My memory is that it was about thirty-five miles down to Reedley and seven miles by horse and buggy to the ranch. That round-trip, of course, would be a pretty tedious thing. So, it was after they found that too much of a chore that they rented this block area. My memory is that there was a fence around it with a wooden, unpainted barn. This is my total memory of the laboratory in Fresno.

Morris: You would still have been a very small child.

Cutter: Yes, yes.

Morris: Do you remember what kind of ice cream it was?

**See company newspaper, The Microscope, for 1939-1944.

Cutter: No, I don't.

Morris: That would have been made right there at the drug store, wouldn't it?

Cutter: Oh, yes. Right. He made it there. He had a very elaborate fountain. Some of the early pictures show the fountains, and I remember him being very much disturbed because he had found that this wonderful contraption of his was not at all sanitary and couldn't possibly be cleaned. He had spent a lot for it.

Morris: This is the pump mechanism for the sodas and the syrups?

Cutter: Yes. It's a tremendous marble contraption set up on the counter.

Morris: This is a very handsome picture of it. [Looks at photo.]

Cutter: Yes, that's right. That was obviously, even for those days, very expensive, and he had to junk that whole thing because it just couldn't possibly be cleaned. I presume that was because the pipes were inside the beautiful marble. [Laughter]

Morris: What did he do to refrigerate the ice cream? Fresno was pretty hot territory, I imagine.

Cutter: I presume that was all ice, you see. I know there was an ice supply in Fresno at the time--because Fresno was and still is hotter than the dickens in summer, when the ice cream season would be on.

Morris: How had your father decided on Fresno as a place to settle?

Cutter: This might be the place to go over why he came to California. My father was raised in Sutton, Quebec, which was a small village south of Montreal, from the time that he was a year old until he left to come to California. His father, being a physician, kept the only pharmacy in Sutton, and my father worked in the pharmacy.

He was sent up around Quebec city to learn French, but he got together with some other lads from the English-speaking area and learned very little French. [Laughter] I remember that he was not able to make himself understood in French in later life, although he was very good at imitating the Quebec dialect.

He advertised for a position as a pharmacist's apprentice in a pharmacy magazine, and his ad was answered by a pharmacist in Traver. So, Traver, California was, in those days, the center of the San Joaquin Valley. It was a grain shipping point, mainly, and I can remember it--oh, perhaps fifty years ago--as still being a ghost city with a two- or three-story brick hotel and quite a

Cutter: few other abandoned stores. But I was through there not too long ago, and there was no sign of these. They evidently had been torn down for the bricks that were in them.

What had happened was that the land thereabouts went to alkali and they couldn't grow the wheat. So, the shipping points moved to other areas in the San Joaquin Valley. You must remember that while distance wouldn't be any great factor now, the fact that in those days every sack of wheat had to be moved by horses and wagons made anything over a distance of ten to fifteen miles an impossible situation for a shipping point. Once the railroads came through, they could find other points closer to other good wheat land, which they did, and, of course, Bakersfield was developed and Fresno was developed and Visalia.

Morris: When you say that the land went alkali, was this due to irrigation?

Cutter: I often wondered that. As a matter of fact, my wife and I were coming through the lower west side of the San Joaquin Valley out from Bakersfield just a few weeks ago, and we were wondering what it was that made soil alkali and neither one of us really knew just what it was. But anyone who has ever seen alkali soil has only to go through the lower part of that valley on the new Highway 5, and see the difference between crops grown on good soil and alkali soil, on which they don't even try to plant.

You may recall that about two months ago there was a tremendous multiple accident down in that area when there was a wind storm and it blew the dust. This was in this alkali area, you see, where there was nothing to hold the soil. When the wind blows heavily, it just is a blinding storm and these cars couldn't see the pile-up ahead of them and just kept piling in. There were many deaths. Now let's see--we got him to Traver--

So, he came out to Traver, California, to act as an apprentice pharmacist. Then he went to Dinuba. Now there I'm not sure whether he had his own drug store or whether he was working for someone. I believe that he then had his own drug store and, of course, in those days there was no licensing of pharmacists. My remembrance is that he and Mr. Twining, too, later in their lives, when the licensing came into effect here in California, were blanketed in as were, it is my understanding, all other practicing pharmacists.

Morris: That was called the "grandfather clause," I believe.

Cutter: This would be the "grandfather clause," right. Now then, it was when he was in Dinuba that he met my mother, who was living on a ranch owned by her father. And this was a very large ranch, one

Cutter: of the largest--if not the largest--in the San Joaquin Valley. It was about three thousand acres and it was a combined cattle and sheep ranch, something very uncommon in those days. Now the cattlemen are learning that they can better range cattle and sheep together rather than one alone, the reason being that the sheep can be turned into a pasture after the cattle have started to go down hill, and can thrive on it.

In any event, I recall his saying that one thing that attracted him to my mother was that in the fall, all of the people around the San Joaquin Valley, including the girls, were terribly dark-, parched-, brown-skinned. [Laughter] Since the Kennedy family always spent three months at the coast, she was quite white--her skin and her sisters' skin were quite white. Now you may wonder why, since they had gone to the sea coast, her skin would be white rather than absolutely tanned. And I can tell you very quickly. In those days bathing suits covered everything. They wore stockings. They wore long sleeves and they wore a large, floppy hat, so that they were completely shaded from the sun.

Morris: And your mother's name?

Cutter: My mother's name was Margaret Kennedy. Her father was Robert Kennedy. He was, believe it or not, an Englishman, but he had red hair and there was a joke that one of the ancestors must have slipped across the channel in the dark. Her mother was a Marion Ryce, who was from a Scotch family.

So, Dad then went down to San Jacinto and started a drug store down there and was not there very long. Then he came up to Fresno, about the same time that they were married. He was down there only a short time. San Jacinto was not a financial success. So he came up to Fresno then and started the store in Fresno. And I was born in Fresno.

Morris: Were there other drug stores in town?

Cutter: Yes, I think there were. Yes. Fresno then had become quite a large center. Let's see, my father would have been born in 1870, so he at that time would have been over twenty-five years of age. And in that time, Fresno had become the central metropolis of the San Joaquin Valley.

Morris: Was this because the railroad had come through Fresno?

Cutter: No. It was just because there was good land around Fresno; you see, it wasn't alkali. It hasn't gone alkali to this day. Fresno, down around Reedley and down near Dinuba, those areas had good soil. North of Fresno there was bad soil. Even to this day, as you go through you can see the difference in the soil by the

Cutter: difference in the crops that grow there. One section will be absolutely lush and the next section will be very dry and perhaps have no crops on it or very poor crops.

Morris: Was Fresno a center for cattle and sheep raising as well as wheat?

Cutter: Yes, there was cattle and sheep raising around there at that time. My memory is that my grandfather probably planted the first vineyard in the San Joaquin Valley. He planted forty acres of grapes there and, presumably when they came to maturity, he realized that they were going to mature in the middle of the summer. This meant that his three months' vacation with his family in Santa Cruz would be interrupted, so he simply called to his foreman and said, "Plough them up!" So, they ploughed up the entire first vineyard in San Joaquin Valley. [Laughter]

Morris: Never got any wine at all!

Cutter: Well, these would be, you see, not wine grapes in those years in that area. They would be table grapes or raisin grapes. They might have been used for wine, I don't know. I remember as a boy that there was a winery--a Roma winery--there in Sanger, just south of Fresno. But, of course, it was much earlier than that that my grandfather ploughed under the vineyard.

Manufacturing Veterinary Remedies

Morris: How did your father decide to go into the manufacturing end of pharmacy?

Cutter: Well, I think that it's pretty clear from the very name of the laboratory when it was started what got him there. It was the Cutter Analytic Laboratory. In Mr. Twining's article, you'll see a price list of various analyses, and these were clinical analyses. This was because there were no clinical laboratories in the valley at that time, so this would lead, you know into getting laboratories and animals. Then, as I recall--and I think that maybe Mr. Twining's memories, if they differ from mine, should be taken--as I recall, blackleg would be one of the first substantial products, blackleg powder vaccine.

That was because the cattle there were dying of blackleg, and there were no products made out here in the west before blackleg vaccine.

Morris: Would the doctors have come to your father and asked for help with various kinds of illness?

Cutter: Oh, yes. I'm sure that must have happened with the clinical and analytical laboratory. I'm sure of it. And to do that, he had to have animals and the rest of it. I think that it was just a natural flow of things that our analytical laboratory started to produce this product and that product. Obviously, there was a tremendous vacuum in this whole western area for any kind of product. This was the only place where there was any attempt to make any biological products, human or veterinary.

Morris: Was a physician trained to deal both with animals and people, or had veterinary medicine split off as a separate specialty?

Cutter: Well, I think that the physicians were definitely trained to deal only with human beings. Veterinarians, most of your veterinarians, as I recall and recall from any reading I've done, were at that time self-taught and got their training, as physicians had ahead of them, by working with other so-called --you know, they used to call them "hoss doctors." If you want to make a veterinarian fight now, just call him a "hoss doctor."

Morris: Yes, I imagine this is a sensitive area.

Cutter: Yes. They resent it, and rightfully so.

Morris: So, it would be someone who worked for a big rancher?

Cutter: Not necessarily--just somebody who had a liking for animals and an aptitude for it and who got a local reputation for being able to diagnose and treat sickness of animals. Not too much earlier than that, that was the way physicians also were trained --go back one hundred or two hundred years, they were all trained by other physicians.

Morris: It was kind of the apprentice system.

Cutter: The apprentice system, exactly. And that's what happened with the veterinarians. They were trained by their predecessors.

Morris: And in a cattle and sheep growing region, the animals would have been a very important thing.

Cutter: Yes. Right.

Morris: What did they do beforehand when sickness struck the animals? They died? [Laughter]

Cutter: Yes, that's right. [Laughter] Pretty much, they did the same thing even after they had the veterinarians because the poor veterinarian had no--most of the pharmaceuticals he was using

Cutter: were of little value. He had some, undoubtedly, that were worthwhile. And, of course, they didn't know diseases. For instance, they didn't know blackleg. The very name of the disease tells what it is. And they didn't know anthrax, these large-scale, epidemic diseases. But, as I remember, I think it was the Pasteur Institute in France that was putting out a blackleg vaccine. Then later, the Parke Davis Company in Detroit, Michigan.

Morris: So, Parke Davis was in existence before your father's firm?

Cutter: Oh, yes. Oh, yes.

Morris: There's a note in Mr. Twining's article on blackleg. He said that the material came from the Pasteur people in France. I wondered how your father would have made this kind of contact. He said that he got the material and then began making the vaccine. This would have been by a process of analyzing the material that came from France?

Cutter: No. It would probably be the culture. They probably would take the tissue from a calf. Now, I think that you'll find the method in Mr. Twining's articles.

Family and Associates in the Firm

Morris: Could we talk a bit about some of the people who worked with your father in Fresno?

Cutter: Yes. One of my father's great problems was to find well-trained bacteriologists and clinical laboratory men. It was a very new field, of course, then--at least bacteriology was --and he had many disappointments: men who were not qualified or men who, though they might be qualified technically, were not capable of producing products. In other words, they might be good scientists, but not good production men. I remember the one who he had most hope for, Mr. Hendry, a graduate of the University of Michigan under Professor Novy, who was then the outstanding bacteriologist in the country. He was out here only three or four months when he died of tuberculosis. And this, I remember, was a tremendous blow to my father.

Morris: How did your father go about finding trained people? They must not have been in very big supply.

Cutter: No. They practically all came from the east, you see, because we had no reservoir out here, that I know of, of bacteriology out here. Dr. Gay was up at the University of California at the time I went through bacteriology at the University of

Cutter: California. And he had been quite a noted bacteriologist, but how long he had been here in California, I don't know. He was an elderly man when I--I say elderly, but I say that from the point of view of a youth. He might have been fifty-five years old, you know. [Laughter]

Actually, as I recall, all of the early--you can see here in Mr. Twining's notes (quote): "Mr. Cutter made a special trip east in an endeavor to get a satisfactory man and obtained Mr. Louis C. Layson, who had been at Parke Davis and then later in Frederick Stearns and Company."

By the way, while I am mentioning Frederick Stearns-- This was quite a large, substantial company, also in Detroit. You will recall that somewhere in Mr. Twining's columns, he mentions that the ivory points largely used for smallpox vaccination were a by-product of the piano key manufacturer. They finally came into terrible disrepute because Frederick Stearns had a batch of these which were contaminated with tetanus, that is with lockjaw, and they caused lockjaw in some of the vaccinated individuals.

Morris: That would be a disaster.

Cutter: It was a disaster. We really shouldn't pass up Miss Norah E. Cutter, later Mrs. H. J. F. Sattin. She was Dad's younger sister and she came out in 1899.

Morris: From Canada?

Cutter: From Sutton, Quebec. She took care of the books. And again, I am digressing--which is the privilege of anyone my age--in saying that in the early hard times of the laboratory that I remember--and this would be, let's say from 1923 through 1927 or '28 or maybe '29. I don't remember, but anyway, times were hard and one might be supposedly getting a certain salary--but the laboratory just didn't have the money to pay it. So, Aunt Norah would hold out on the checks and talk the individual into taking a post-dated check. What one was supposedly getting in the way of salary might be quite different from what his actual take-home pay was. [Laughter] Things were very, very tight with the laboratories in that period.

Morris: How did she convince people that they didn't need their full week's paycheck?

Cutter: It wasn't a matter of convincing them that they didn't need it. They, of course, all were needing it. But actually [laughter] she really disburged by her woman's intuition of the actual need. And those who had greater need--with a family and children, you know--did much better than those who might be a single man or a single woman.

Morris: Had she had any training for bookkeeping?

Cutter: None. Just what she had learned in her father's drug store, and that had to be self-taught because her father was a typical physician--wonderful in taking care of his patients, but absolutely terrible as a businessman, not collecting for his calls and not keeping good records. He was just a horrible businessman. So, she had to be pretty largely self-taught, and in those days, the bookkeeping records were rather simple. It certainly was bookkeeping and not accounting.

This was also another thing that she had to do. It wasn't only the employees who had to wait checks, but it was also our suppliers. And she was a wonderful one at keeping suppliers still sending us goods while we owed them over very long periods of time. [Laughter] I remember that even after I came into managing the company, we had a printer in San Francisco by the name of Brent who was very, very, very distantly related by marriage through my mother. But Walter Brent had carried Cutter Laboratory's account, sometimes having months and months on his books which the laboratories couldn't pay.

And I recall that I wanted to have a job done by a printer whom I felt that for that particular type of printing would do a better job than Brent would do. And I had to talk like a Dutch uncle because my aunt kept reminding me of the many years that Mr. Brent had carried the laboratories when he didn't get paid promptly at all.

Morris: Did Norah live with your family then in Fresno?

Cutter: Yes, she did, part of the time. Yes, she did--part or all of the time.

Morris: Were there boarding houses and things of that sort in Fresno?

Cutter: Yes, that's right. I don't recall Aunt Norah living with us in Berkeley.

Morris: At what point did she marry Mr. Sattin?

Cutter: Well, I would say that it was very early after they came up here.

Morris: Was he a member of the firm?

Cutter: No, but he was a builder and he did certain building for the laboratories. I remember that he made a refrigerator for the laboratories, and I believe that he built what is now our packaging area. And I believe that he built what is now the veterinary biological building. He built several buildings for

Cutter: the laboratories, both while they were at the old location at Sixth and Grayson and then after we moved here to Fourth and Parker.

Morris: So he is a Berkeley man rather than a Fresno man?

Cutter: He was English. I don't think that he was in Fresno. Now I don't know how Aunt Norah met him or anything about that. I don't remember that. He is, by the way, still living--oddly enough, back in Sutton, Quebec. But he's over ninety now. And up until just the last couple of years, he has driven his car back and forth, coming out here for the winters and going back to Sutton for the summers.

Morris: That's a nice arrangement. Was your mother active in the drug store and the laboratory in Fresno?

Cutter: No, no. She was not. The only time I recall mother in the laboratory was in the 1906 earthquake when we were supplying smallpox vaccine and needed so much of it that--I don't remember what particular thing it was, whether it was dipping the ivory points or putting them in glass vials or just what it was, but I know that she and her sister, who was then in college, and friends all came down to the laboratories to assist in that. The reason that I remember that was that there was no baby-sitter for me, so I had to come down and play around the laboratories while they were working.

Morris: And what about your two little brothers?

Cutter: I just don't know whether they came down or what--or how.

Morris: In reading the old Microscopes about Fresno, I came across Edward Casner.

Cutter: Ed Casner was a handyboy down at the laboratories following Mr. Twining. When Mr. C. M. Twining got into doing more responsible work--my father depended on him more and more--and at that time, Mr. Casner was the sweep-out boy and clean-up boy. I remember that he slept at the store and he had difficulty waking up. So, I remember stories of him having to put his alarm clock on a dish pan right beside the bed.

Morris: Wouldn't that make an awful rattle? [Laughter]

Cutter: [Laughter] Terrific! And he then, later, again grew to be a substantial man. Dad sold the drug store to him on time and he bought it and created the Casner Drug Stores.

Morris: So, he would have been a much younger man, just getting his start.

Cutter: Yes.

Morris: And then the Twinings. There were two Mr. Twinings.

Cutter: There were two Mr. Twinings. The first Mr. Twining was Frederick Twining and he was brought out to be one of the technical men, but--

Morris: Your father found him on one of his recruiting trips?

Cutter: Yes, I think it was Ohio, somewhere in the midwest. But anyway, he was a tremendous disappointment to my father, who had to discharge him. His only real contribution to the laboratories was that his younger brother followed him out here and was employed by my father and turned out to be the strong right arm of the business. He continued with the business until his retirement, somewhere in the mid-forties.

Morris: In the note in the Microscope, C. M. Twining said that there was some chemical assay work done at the very beginning of the lab.

Cutter: I don't remember a thing about that.

Morris: But Frederick Twining did stay in California?

Cutter: Yes, he stayed in California and eventually he developed a very substantial, very fine analytical laboratory in Fresno.

Morris: Was that in competition with your father?

Cutter: No, it wasn't in competition at all. You see, my father got out of the analytical work at the time that he moved from Fresno.

Morris: When you say analytical work, does that mean helping diagnose what is--?

Cutter: Yes, like urinalysis, as an example, white blood counts, red blood counts, differentials. And, of course, your bacteriological analyses--diphtheria cultures and cultures for tuberculosis and that kind of thing.

Morris: Would there be any records of how much of the early work of the lab was analysis and how much was the actual production of--?

Cutter: I just don't know. See, that would be when I would be just a boy.

Morris: What was your father's primary interest? What did he himself enjoy most doing?

Cutter: Well, he never did any of the technical work in the laboratories. He was never a technical man. He was always the business end of it.

Morris: Would he have been a salesman in those days?

Cutter: Not in the very early days, no. I don't think that they had salesmen until they came up to Berkeley. I remember some of the early salesmen--I don't think it will make any difference, but one of the very early ones was Foote. I remember him because he and his wife came up and babysat with us when Mother and Dad went on some trip, and I don't remember what the trip was. Then there was Mr. H. S. Howard and, later, his son, Harry Howard, who later became the president of what is now American Home Products.

Edward A. Cutter, Entrepreneur

Morris: Tell me a little about your father and about what you feel are the qualities that helped him make a success?

Cutter: Well, first of all, I think that Dad was a very compassionate man. He was rough-gruff on the outside, you know--a great big gruff grizzly bear on the outside--but kind of a soft woolly teddy bear underneath. He was never one to be aloof from the folks who were working with him. He was a very friendly chap. It didn't make any difference who the man was or his position in the laboratories, he had a feeling that he was part of the team and they were all very loyal to him.

I think that maybe his fault was that he was such a friendly, kindly man, that he found it almost impossible to discharge a man when, actually, often it would be to a man's best interest to be discharged and to get into another line of work. I remember one particular instance where Dad put up with mediocre or less than mediocre performance over quite a number of years and was finally forced to take the step. The man went into other work and was a very, very wonderful success at it.

I was reminded of that not too many years ago, when the same thing had happened--a man who had been hired and never had quite come up to our expectations, who always, though, seemed almost up there and not bad enough to discharge, but finally, it came to that point where he had to be discharged.

Cutter: And he, like the man many, many years earlier, went out into real estate and is a whiz. [Laughter]

I think one thing--coming along, trained by my dad, I was painted with the same brush. As I look back over some of the men who never really did quite come up to expectations in the work they were in, I actually feel that I did them a disservice by not terminating them. Dad did something that I maintained when I was the one who was calling the shots and my brother did later, and my son now--we certainly bent overboard when the time does become necessary that we do have to terminate somebody, particularly somebody who has been with us for a long time, we bend way over backwards to give that man enough rope--enough termination pay, or whatever you may call it--so that he is not desperate and so that he has time enough to go out and locate another position.

Often, if we think that it can be done practically--the man won't be terminated. It will be suggested to him that he probably is in the wrong line of work and that he would be better off if he could look for other work while he's now employed by us. I know that Dad did this in several cases that I remember.

Morris: So that he felt a sense of obligation to his employees?

Cutter: Oh, yes. A very big sense of obligation.

Morris: When the business was struggling financially in those early days, did your father talk with the employees and say, "We're going to have to hold out on your salaries, in order to go on?"

Cutter: That was Aunt Norah [laughter] who did all that talking! Occasionally, now, an employee who felt that he really needed it and that Aunt Norah didn't understand his real need for it as much as she should, would go to Dad. I remember some of the arguments that would transpire when they would be arguing over how they should divvy the little bit that there was in the bottom of the bucket. [Laughter]

Morris: His concern would have been to be sure that there was enough money to keep the lab afloat, to have a stock of supplies?

Cutter: That's right. I recall, too--this was during the '20s--what is now the first Berkeley branch of the Wells Fargo Bank was a local bank, was the First National Bank of Berkeley. (It later went through the American Trust and, still later, the Wells Fargo American, and finally Wells Fargo.) But their top lending limit was fifty thousand dollars, and the laboratories had borrowed up to that. So, they couldn't lend any more, and whether

Cutter: Dad couldn't get any more, or just what it was--but I know things were very, very tight.

Morris: Was that because so much money was tied up in inventory, raw materials, and --?

Cutter: Well, that was a big factor because, of course, these products we were making took a long time to manufacture. And, so when the inventories were greater, we did have more money tied up in inventories than was customary. Also, they just weren't able to sell enough at a high enough price to make it go.

Morris: I have a note that Cutter is the third oldest biological company in the United States. Who would be the ones who were established prior to Cutter?

Cutter: Parke Davis, Merck, through their subsidiaries, Sharp and Dohme, and their predecessor Mulford Laboratories. I believe that's it.

Morris: Yes. I just wanted to sort of set that stage because I was wondering what kind of competition there was?

Cutter: In those days? Well, very keen competition. Of course, we did our best. We were strictly limited to western distribution. It wasn't till after--oh, we opened an office in New Orleans and we had one in Chicago. The Chicago was a financial drain, rather than an assistance.

Morris: This would be when?

Cutter: Post-World War I. The New Orleans office was, at best, a breakeven then. Our business was here on the Pacific coast, mainly California.

Morris: Were the Parke Davis people and the Merck--?

Cutter: They were national.

Morris: And did they ship out here?

Cutter: Oh, yes. You see, Parke Davis was shipping out here even before the earthquake and Mulford would have been, too. And, there were several others then that are no longer in existence. Stearns was one of them, I recall.

Morris: Was part of the marketing problem, particularly in Fresno, that you were making new veterinary products that ranchers were not familiar with?

Cutter: No, they were older--they were products that were not doing the job. The Pasteur Institute anthrax vaccine, for instance,

Cutter: was not doing the job. Now, I don't remember the time factors on this, but our anthrax vaccine was a better vaccine and would hold on pastures that the Pasteur vaccine would not hold on.

In other words, it produced a greater immunity. On the other hand, it was not great enough to hold on some of the worst pasture areas, and those worst pasture areas were some areas where the feed was the very best. It would be semi-swampy areas. I know that the Miller and Lux Ranch people kept after the laboratories to make a vaccine which would allow them to hold on pastures where, if they put their animals on them, even though they had been vaccinated, they would come down with and die of anthrax.

Morris: When you say "hold on a pasture," what does that mean?

Cutter: Feed cattle on a pasture.

Morris: And not have them come down with this disease?

Cutter: Yes, that's right. Miller and Lux, for instance, were the biggest ranchers in California and they had these great areas of wonderful lush feed, but they couldn't turn an animal on it.

Morris: Was this anthrax, or was this Valley fever?

Cutter: Anthrax.

Morris: Is this a bacterial thing that breeds in the swamp?

Cutter: Yes, it's a spore vaccine, a vaccine which goes into a spore form which can live for years and years and years in the pastures, you see. Now, the timing on this was later--I can't give you the exact date, but it would be before 1920--Dr. Fred Wood developed what was known as Spore Number 4, which allowed ranchers who had these wonderful, moist, swampy pastures to use them. So, you can realize what a real contribution that was to the cattle industry here in California.

And for that very reason, our veterinary products became the products of choice here in this area. Then later, when the folks down in Louisiana found they had this same thing of swampy anthrax pastures, they used our Spore Number 4.

Morris: What would be the financial arrangement with somebody like Miller and Lux?

Cutter: They would just buy the vaccine. No contribution to research or anything like that.

- Morris: I was thinking of the way that things happen sometimes now. Somebody says, "We have a problem. If we finance it, will you work with us on it?" In other words, your laboratory invested the time and money to develop something that would work for the Miller and Lux people?
- Cutter: That's it, yes. Oh, yes, there was that--they would take a few cattle and vaccinate them and turn them out on these pastures to find out--
- Morris: With your intermediate products?
- Cutter: Yes.
- Morris: So, that in effect, the laboratory was actually doing basic research?
- Cutter: Research work, yes. That's right.
- Morris: Was this your father's intention? Did he have an interest in doing research?
- Cutter: Oh, he was very much interested in anything that would solve the veterinary or medical problems, yes. Of course, that would be axiomatic that one in this business would have a very definite interest in this area. It really, though, wasn't until 1924 that we had a man who did nothing but research. But I should get into that later on when I get into the intermediate men.
- Morris: I'm interested that in the beginning, in order to be a producing plant you also had to do your own research.
- Cutter: Yes. That's right.
- Morris: Did your father spend a lot of time reading? Was there much material available on what was being done in research?
- Cutter: No, he was not in any way a technical man. He was not technically trained or technically oriented. The men who did that were all men who were in production. Early, there was no separation of research and production. The man who was doing the producing had to do his own research as well.
- Morris: He had his guinea pigs in one room and his raw materials in another.
- Cutter: Yes, that's right.
- Morris: Even though your father had been trained himself as a pharmacist, he never got in to the actual--?

Cutter: No. He never had any interest in production at all.

Morris: Nor Mr. Twining?

Cutter: Oh, Mr. Twining, yes! Mr. Twining was the production man. He was heart and pillar of production. In other words, Mr. Twining wanted nothing to do with accounting or sales. He couldn't care less about anything except production, and when I say production that means, in his era, research too, because they were combined.

Morris: Who would have been your suppliers then? The same people from whom you got the drug store supplies?

Cutter: Well, I mentioned printing, Walter Brent, and of course printing, meant the labels and direction sheets and booklets and advertising and all that sort of thing--invoices and all. He was a very large supplier for us.

Then the glass, that would probably come next, and that was the Pacific Glass Company, I think, the predecessor of Owens Illinois Company in San Francisco. The rubber company, very early, I don't recall. Later, it would have been Faultless Rubber Company.

Morris: How about the chemicals?

Cutter: Well, that would be largely B. K. H. as an intermediate wholesaler, you see. Rogers and Van Waters are their successors now.

Morris: There are now a couple of chemical manufacturers in Berkeley, for instance Philadelphia Quartz.

Cutter: Yes, but they were never suppliers of ours. They're silicate and so forth, water-glass to preserve eggs, as they used to do. And what else they use the silicate for, I don't know.

Stauffer Chemical used to be an immediate neighbor of ours in the very early days in Berkeley. We used very little of theirs, some sulphur, but very little of that. Most of our chemicals came through chemical wholesalers and, of course, we probably got them from all the different ones, Baker and Merck and Monsanto and Dow.

E. A. Cutter with his Sons

Morris: Was what was going on in the lab part of the family discussions around the dinner table as you and your brothers were growing up?

Cutter: Oh, yes. Mother and Dad would discuss it, yes. It was very much a matter of conversation. Of course, it was the main thing of interest to the family.

Morris: What particularly do you recall your father telling you as a youngster?

Cutter: Well, he was not one to give long lectures. He was a strict disciplinarian of the old school--lick them if they're bad and praise them if they're good. He was stronger on the licking than he was on the praising, but, of course, I am probably prejudiced in that in believing that I had more praise coming than I got. [Laughter] But as far as advising "do this and don't do that"--no, he was not one to sermonize at all.

He tried to get us to have good educations and that was that. He was very glad when I went into medicine because, of course, his father and grandfather had been physicians.

Morris: Why did he himself decide not to be trained as a physician?

Cutter: I don't know. If I discussed that with him, I don't remember.

Morris: It's not the kind of thing, I suppose, that one would ask one's father.

Cutter: [Laughter] No! I just don't remember.

Morris: Was it expected that you and your brothers would come into the firm as you were growing up?

Cutter: Yes. We certainly--I did--expected all along to come into the firm. I'm sure that Ted and Fred did, too.

You know--there it is and it's been discussed around the table and you've heard it so much. Fortunately, we were all able to work together as a team.

Morris: One thing from our earlier discussion about the trips to the Sierras --this would have been still the period when the laboratory was on shaky financial grounds. How did he manage to depart on vacation for several weeks at a time--?

Cutter: Well, now you're going to get me into the intermediate years. If you want me to do that, I'll go into that.

Morris: Well, let me ask a more general question: was your father active in other affairs in Fresno community--?

Cutter: No, not that I know of. And up here in Berkeley, he was never a joiner. He never joined Rotary or Kiwanis, never belonged to any of the clubs in San Francisco or here. I think I told you that while he never put his foot in a university or college, I consider him the best-educated man I have ever known because he was an avid reader on a very wide range of subjects.

We had the Encyclopedia Brittanica in the house and the finest dictionaries and I recall the Harvard Classics. But he was just a reader, and very, very rarely of fiction--solid subjects.

Morris: History and--

Cutter: Biography and science. He was a very, very well-rounded man. I remember once he was laughing in his later years about--he and Mother were in the bridge club and there was a chap there, and this chap asked Dad what university he had gone to and my father said, "Oh, I've never gone to the university." He said, "Oh, I thought you were an educated man." [Laughter]

Morris: Isn't that interesting. So, from an early age, you were encouraged to read?

Cutter: No. Again, Dad was not one to say, "Here, you ought to read this book" or anything. The books were all around and if we wished to read them, why, they were there. There was no prohibition: you must not put your hand on any book. But if a subject would come up that he thought would be either in the dictionary or the encyclopedia or in something he'd read, he would get it and read it out loud to us. But he was not one to insist, or you might even say encourage us more than to make it available. He was not a forcer, not one that tried to get us to go one way or the other.

Morris: Did he have a long-range plan for the laboratories or a mental picture of how he would like them to be developed?

Cutter: Well, I think nobody can be in any business without having a long-range plan. I well remember a group of our men here coming and saying that we ought to have a long-range plan. I listened to them for a while and got their ideas and I said, "Well, golly! We don't have anything written--we'll do this, we'll do that. But, believe me, here's the way I visualize it and here's the way I hope it can be. You can't plan--you can only build castles after you get so far out into the future."

Cutter: And I said, "Yes, I've built castles, too, but I'm more interested in what we're going to do in the next year, especially, and a little less than that, two years or three years from that, than I am in trying to lay down this plank and that plank clear five or ten years from now when I know damn well the planks will be different--made of different material--and go in this direction instead of that direction."

But he was that way. I know he had great plans and great hopes for us.

Morris: Was the drug store prosperous enough to carry the lab?

Cutter: Yes, it was.

Morris: And to feed the family? I'm concerned about all the little boys.

Cutter: Yes, that's right, the family. No, we always ate. Well, we had hard times in the family--I say hard times, but not that hard. We always had a hired girl and that was what she was called. That was in those days, I suppose, a matter of--what?--fifteen dollars and found for board and lodging. And hired girls, you know, were very--

Morris: They were a part of the culture--

Women Employees

Cutter: Of the era. You had to be really, really poor not to have a hired girl. Well, women weren't in business as they are now.

Morris: This is something that interested me--the fact that your Aunt Norah was a part of the business, and, apparently from the very first, some of the help in the drug store and the lab were women.

Cutter: Yes, that's right, and also in the office. We had typewriters very early. I remember my Uncle Fred taking me down to his lumber yard in Fresno and showing me how they made copies of the letters with an old letter press, and then, later on, showing me this mechanical contraption for writing them. He was very proud of it.

Morris: Now, who's Uncle Fred?

Cutter: Uncle Fred Prescott was my mother's brother-in-law and he later

Cutter: lived in the old family home where I was born. The Prescotts went there after my grandparents moved to Berkeley in 1910.

Morris: So, Uncle Fred lived on the ranch?

Cutter: No, Uncle Fred lived in Fresno and was in charge of the Valley Lumber Company, the manager of it.

Morris: What was your father's feeling about women working for him?

Cutter: [Laughter] Well, just no feeling one way or another. Actually, we never had any but women working in the filling and packaging operations at the laboratories, men supervisors, but only women were doing the actual work. And I know Mr. Twining had great feeling that the dexterity of the women far out-raced that of men, on the average.

Morris: Were these young, unmarried women?

Cutter: For the most part. As a matter of fact, Mr. Twining married one of the laboratory girls.

Morris: Did he now? [Laughter]

Cutter: There were twins, the Howell sisters, and he married one of them. I remember that the gals were so much alike, he couldn't tell them apart--they'd play tricks on him [laughter] which I thought would be rather dangerous.

Morris: I should think so, particularly as his affections proceeded. Was this part of the Howell family, the fine printing people?

Cutter: No, no relation, no relation that I know of.

Morris: That's interesting that there were women members of the family and women employees from the beginning. Now there's the idea that we are coming out of the era when all women were supposed to be at home. Do you have comments about--?

Cutter: Right. Well, one thing--you'll remember that in those days, the wages for women were considerably less than the wages for men doing the same work.

Morris: And this was an accepted fact of life?

Cutter: Oh, yes. I mean, that was just a fact of life that this was so. And not only that, but I have to agree with Mr. Twining that, as a rule, women are more dexterous than men. And most of this was finger and hand work, you see.

Cutter: Even if it was just putting an ampoule in a package, it was finger and hand work, and women--they have smaller hands. I don't know--I'm from the old school in believing for most things, when you come to that type of work, that the women do better at it than do men. I sure would have starved if I had had to make my living with my dexterity. [Laughter]

Moving to Berkeley

Morris: Was it Mr. Twining or your father who raised the first questions that led to moving the lab from Fresno?

Cutter: Oh, that would be Dad, at that time, you see. He was managing it. He was overall management, and that would be him.

Morris: In Fresno, was it organized so that there was a president and a vice-president--?

Cutter: I don't think that. Maybe there was, just had to be legally, but it wasn't till after they came up here to Berkeley that I recall that there was that. And then you get into the second layer down. Mr. Twining was also a vice-president and there were other vice-presidents. As soon as there was a president and a vice-president, Mr. Twining was a vice-president for production.

Morris: And that would be after the move to Berkeley?

Cutter: I'm pretty sure. It must have been. I think up until that time they weren't of a size for it to make a doggone bit of difference what the title was.

Morris: Would you recall any discussions of the move from Fresno to Berkeley or discussions of it after the fact?

Cutter: No, as I pointed out in one of these papers here, my memory of it was that it was the animals, but also that they were having trouble with cultures-- that that was a factor in it** Mr. Twining was closer to that and I would accept his remembrance that it was the animals rather than the cultures. Although, I do know that they were having trouble with the cultures then, but not to be remarked about, because we still have trouble with cultures. [Laughter]

Morris: What kinds of troubles befall cultures?

Cutter: Oh, they don't grow right and they don't produce the right toxins and they lose themselves. There are just nine million

**Dr. Cutter is referring to columns he wrote for The Microscope on subjects ranging from personal trips to company products.

Cutter: things that can happen with cultures! They're like sheep; they're an animal born with a will to die.

Morris: That's a desperate kind of statement, but good for business, I would think. [Laughter] What kinds of troubles occurred with the animals that were particularly--?

Cutter: Well, I suppose they were just dying off. Of course, there was in the Valley then no air conditioning of any kind.

Morris: But if the majority of the work at that time was veterinary work, it must have taken some deciding to move away from the ranch country.

Cutter: That's right, but if you couldn't make it there, why that could be the reason, you see.

Morris: And were other places considered besides Berkeley?

Cutter: I do not know. I'm sure that the original intention was just to move to the Bay region to get out of the hot weather, whether the reason was that the animals weren't doing well or the cultures or both. But I think as to whether it was Berkeley was a matter of what Dad found in the way of what he could buy for how much when he got here.

Morris: Mr. Twining commented that one consideration was a wish to be close to the university.

Cutter: Yes, I suppose that would be.

Morris: Had there already been contacts between the lab and the university?

Cutter: I do not know. You see, I would be just a boy then, a very young boy.

Morris: Right. One of the names that occurs to me is Dr. Karl Meyer, and I wondered if he is somebody that we wanted to talk about later on?

Cutter: Well, by all means, because we are making plague vaccine now that we got into through the work of Dr. Meyer and with Dr. Meyer.

Morris: Did your mother have any objections to moving away from her family?

Cutter: Not that I know of. I think that Mother did pretty much what Dad thought was best. Actually, you see, it was not too many

Cutter: years later that her parents moved here.

Morris: They did?

Cutter: Yes, in 1910.

Morris: Who took over the ranch?

Cutter: They sold the ranch.

Morris: When you came to Berkeley, your father bought a large tract of land. It didn't need to be leased or--?

Cutter: No. It wasn't a very large tract of land--several acres. And goodness, I wonder if it was fifty dollars an acre at that time. [Laughter]

Morris: Were there usable buildings?

Cutter: I don't know whether the old barn was on it or not. You remember that picture that has that old, wooden barn? It looked like an old building. My memory of it is that it certainly was just a board and batten building. [Laughter]

Morris: And the water supply was--?

Cutter: Well, I'm just thinking that with all the windmills around there--why would one have a windmill if there was a good water supply?

Morris: At that point, where was the edge of the bay?

Cutter: At that point, the edge of the bay was right where Aquatic Park is. The Southern Pacific tracks came out along the edge there.

Date of Interview: 4 October 1972

Morris: Today, I thought that we might talk a little bit more about getting the lab moved to Berkeley. I wondered, just as background, where did you and your family make your home when you moved to Berkeley?

Cutter: When we first moved to Berkeley, we moved to 1524 Arch Street, and we rented that. It was a box-like, shingled house of the usual eight rooms, and, let's see, by golly, we had a maid's room down on the lower floor. So, it was a nine-room house--four bedrooms upstairs and one bathroom only.

It originally had a wood stove in it, and I remember that Mother even had a very fancy dough-kneader that she used for baking her own bread. I particularly remember that

Cutter: we kids would cajole her into making doughnuts, which were the old sugar type doughnuts which were absolutely delicious.

Morris: You had one brother--

Cutter: Two brothers.

Morris: Both brothers were born in--?

Cutter: Oh, well, no. One brother was born in 1902 in Santa Cruz. That was Ted. Fred was born in Berkeley, and that was 1904. As I recall, both of those were home deliveries, as was common.

Morris: Would you have been of school age--?

Cutter: No, I wasn't. I went to school for the first time after we came to Berkeley. I recall one very early thing that happened. There were four steps--or approximately that--from our front porch to the sidewalk, and I fell down those four steps, landing on one of those old wire mats that they had with the sharp edges. My ear was just hanging down, entirely severed, except for one little piece of skin at the lower edge.

I remember that the doctor came up in his horse and buggy and took care of that ear. [Laughter] I've forgotten now what ear it is--the right one. I have a scar from it, but not too noticeable. So, surgery wasn't all that bad, even in those days.

Morris: Still without benefit of a hospital?

Cutter: Oh, yes. Right at the home. Oh, yes.

Morris: He sewed it up right there?

Cutter: Yes, and without benefit of anaesthetic, I'm sure. Although, actually, my memory is of the fall and of the ear hanging down, and not any particular pain when he sewed it up.

Morris: You must have been in a state of tremendous shock. Could you tell me again how much land your father bought for the lab at the beginning?

Cutter: Well, now, I frankly don't remember. But just remembering what it was and remembering that they bought more later, I would think that it was not over five acres, and probably more nearly three acres, that he first bought. And, you recall, we were talking about the number of horses-- Well, I found a picture here with what I believe is my cousin Josie's writing-- that is definitely dated 1905. It says: "Five horses--all of the laboratory horses."

Morris: That's the full stock.

Cutter: At that time. The barn capacity was eight. Now, the barn that that showed was a new barn, and they must then have just been using the old unpainted barn as a holding barn or something. Although, I'm sure in the very early days, it was used for the serum horses. When I say early, I mean the first time I ever saw it.

Morris: Would your father have bought the land from a farmer, or was there already another business--?

Cutter: No, no. There were no other businesses nearby at that time. I guess that he must have bought it from a farmer, just whom I don't know.

Morris: And so, he put up the first laboratory building?

Cutter: Oh, yes. There were no buildings at all. Maybe that old barn was there.

Morris: So that the first job would have been to build a laboratory and an office building.

Cutter: A laboratory and an office building. No, you see, the office was over in the Rialto Building in San Francisco. The reason was that they felt that they had to have a San Francisco address for prestige. Berkeley, at that time, was not a very prestigious address. However, since they were forced at the time of the fire to move the office over here temporarily, they found that it was absolutely unnecessary to have an office in the city.

Not only was the office over there, but the shipping department was over there, and they had to carry the meager products of the laboratories from Berkeley to San Francisco in suitcases to supply the shipping. [Laughter]

Morris: So that the initial production was quite small?

Cutter: Oh, very small indeed! I think it was 1911 that I was carrying the shipments from the laboratories at Sixth and Grayson to the Berkeley post office on the handlebars of my bicycle. They were small packages, you know. The packages were small and I'm sure that there must have been some shipment larger than that that went by express company. Now, what was the express company?--it was the predecessor of Railway Express Company. American Express, I think.

Morris: The buildings must have been quite a financial investment for your father.

Cutter: Yes, it was. He had to borrow money to put it up and it was a very great strain on him. However, there was a while there--during that early part in Berkeley, when the laboratories really made money. It was later on--I would say after 1918--when they got a bit over-extended in building the hog cholera laboratories and the anthrax laboratories.

Morris: Who were his sources of capital?

Cutter: Well, his father-in-law, my grandfather, Mr. Kennedy loaned him money. Then he also borrowed from the First National Bank of Berkeley.

Morris: Do you recall who the banker was? That must have been an important financial connection.

Cutter: Yes. The banker at that time was a Mr. Naylor--Frank Naylor, I believe. His son, Linden Naylor, was in high school with me and died just a month or so ago. Did you know Linden?

Morris: Oh, dear. Yes, I did know Linden. I'm sorry to hear that.

[Pause]

Morris: So, the Naylor family were a banking and finance family back a generation. Would Mr. Naylor offer advice on the business as well as on money?

Cutter: Only financial, only on money matters. I remember him because I used to have to get advertisements for the Berkeley High School newspaper, for which I served on the managerial staff and was later manager, so I always had to tackle Mr. Naylor to get advertisements.

Morris: But would he and your father talk about business conditions and the like?

Cutter: I just don't know. I had no contact then.

Morris: Did your father have any other business connections in the Bay Area to assist him in getting started in a new location?

Cutter: No, none at all.

Morris: How about people he had worked with at the university?

Cutter: This I am not clear on at all. In other words, I don't know whether he did or didn't.

Morris: Now, Mr. Twining reports in his column that the laboratory building was in three sections and that each was self-contained.

Morris: There were two rooms for the blackleg vaccine and two rooms for the anthrax vaccine, and then one room that was used for the production of tuberculin, mallein, and other products.

Cutter: That would be a glandular disease of horses--glanders, they call it.

Morris: Was this separated because the processes were different?

Cutter: Well, they didn't want cross-contamination. They were different organisms. They didn't want to get blackleg in anthrax products or vice versa.

Morris: That must be a constant danger to guard against, in this business.

Cutter: That's right. Now then, the tuberculin, I recall that--because briefly, occasionally, I would assist in the manufacture of it. That was a concentration by evaporation of cultures on which tubercle organisms were grown. There were many different tuberculins. The one which finally was the one which was used mostly was so-called "old tuberculin" or "Tuberculin O.T." Now just what the difference between that and the other tuberculins was, my memory fails me, but that probably will come out in some of the literature that we have.

Morris: Was this a tuberculin vaccine?

Cutter: It was for diagnostics. Some use of it as treatment, but mainly for diagnostics.

Morris: On animals?

Cutter: Tuberculins were used both on animals--you know, to test the cows for tuberculosis--and also to test humans. There were two different labels, one labeled under "veterinary" and one under "human," but except for the strength, it's my remembrance that the two products were the same.

Morris: So that the tuberculin would have been the first human product that was produced in any quantity?

Cutter: It was one of the very first--blackleg vaccine first, I believe, perhaps then tuberculin or maybe anthrax. I think probably the tuberculins before that.

Morris: The blackleg and the anthrax were manufactured in Fresno. Was the tuberculin also?

Cutter: I don't know.

Staff and Buildings

Morris: We talked before about your father's search for a good bacteriologist. Did he find one when--?

Cutter: Well, later on, yes. They had a number of them. For instance, Dr. Ivan C. Hall, later professor of bacteriology at the University of California, was one of the bacteriologists. Dr. Wakesman, later a professor at Rutgers, was another. He later received the Nobel Prize.

Morris: So that when your father opened the Berkeley plant, Mr. Twining came with him from Fresno.

Cutter: Mr. Twining came with him from Fresno, and a Mr. Trowbridge, and later, Dr. Hall, and later, Dr. Wakesman.

Morris: And what was Mr. Trowbridge's function?

Cutter: He was a bacteriologist, I believe.

Morris: It sounds as if none of these three gentlemen was with the firm very long.

Cutter: My memory of the length of their service is rather dim. Now, actually I think that you are correct in saying it didn't extend over a decade in any of the cases. After that, Dr. Harry E. Foster--an M.D.--came along and he was the medical director for many years.

Morris: Was he the first person to have the title of medical director?

Cutter: Yes, I believe he was.

Morris: How early had he joined the company?

Cutter: Well, it was before 1920, and it would be after 1912, but I can't place it exactly. His father--and I forget his name or initials--was health officer for the state of California.

Morris: At the same time that Dr. Foster was here?

Cutter: I think so, but I'm not sure. I know that he was a very respected man in public health.

And then, in the veterinary field--perhaps before Dr. Foster and again until his retirement--Dr. Fred E. Wood was veterinary medical director. Now I think about 1912, Mr. John J. Rahill came and he eventually became the general manager of the laboratories. He was over sales and over the accounting and the office.

Cutter: He and Mr. Twining collaborated. They didn't see eye-to-eye at all times. [Laughter]

Morris: What kinds of things did they disagree on?

Cutter: Oh, goodness! I don't remember. I just remember that they were not always in agreement and that Dad had to be the arbitrator.

Morris: Was this a matter of personalities, do you suppose, rather than an immediate question that had two answers to it?

Cutter: I think more the questions. I think they got along socially all right, but they just differed in opinion, that's all.

Morris: Did these men just turn up looking for a job, or had your father inquired around through--?

Cutter: Well, I don't remember just "who done what to who" in these cases [laughter], but I do know that Dr. Wood was distantly related to my father, distantly, though not too darn distantly since he's distantly related to me. Come to think of it, they were first cousins because dad's father and Dr. Wood's mother were brother and sister.

Morris: He was a DVM, and we mentioned earlier that veterinary medicine didn't have a licensing procedure.

Cutter: Well, now, you see, that's very early and Dr. Wood had a DVM from Cornell, which was the outstanding veterinary school of the nation.

Morris: I see. And that as early as 1910 or so?

Cutter: Oh, yes, there was a veterinary school there at that time, but at the turn of the century and prior to 1906, let's say, there was a great dearth of veterinarians here in California.

Morris: I would have thought that the university would have had an early program.

Cutter: It's within a year or two of 1951 that the first class was graduated from the University of California veterinary school at Davis.

Morris: Isn't that incredible in an agricultural state!

Cutter: Yes. Of course, they had a medical school long, long, long before that.

Morris: Yes. Now, going back to veterinary products--the hog cholera production was discontinued in 1903, according to Mr. Twining.

Cutter: No, now wait a minute. You've got to get two things separated here. That hog cholera serum that he's talking about was a product or a serum and I'm not sure whether it wasn't just supposedly a bacterial culture that was injected into horses for use in hogs. It was not a successful product therapeutically.

Now later on--and I would judge that it would be in the neighborhood of 1917 or 1918--we went into hog cholera serum and virus right over in the building that you see with the tiled roof and the other buildings of that kind. They were made by injecting virus into hogs, and that was a very successful product therapeutically. The virus and the serum were used simultaneously to produce an active immunity against hog cholera.

Morris: So that the procedure that was unsuccessful was discontinued.

Cutter: That was the one that was in 1903. That was discontinued then and this other is a later thing, where they used hogs.

Morris: This earlier serum--was that ever produced here, or was that just dropped in Fresno and not picked up again?

Cutter: I don't remember. I don't know.

Morris: The human products lab dates from 1905--was that in a separate building?

Cutter: It wouldn't have been in the anthrax or blackleg building. Now it could have been in the same building as the tuberculin. The tuberculins require very small space and the mallein, too, so I am rather under the impression that it might have been in a separate section in that building. I see in the early photographs there are only three buildings, one of which is the barn, and the other was spoken of as the veterinary building. So, if they made tuberculin and mallein in the other building, then any human products had to be made in that third building.

Morris: This was the building that was at the southern end of the property?

Cutter: That's right. That building was at the southern end of the property and the veterinary building was at the northern end of the lot, for anthrax and blackleg.

These pictures are approximately 1916, plus or minus two years. And interestingly enough, most of those pictures



The Cutter Plant--
Two Points in Time

Above: The entire
Cutter Laboratory,
c. 1906.

Below: Cutter
Laboratories in
foreground,
March, 1963.



Cutter: which you will see there were taken in front of the veterinary building. Now I presume that the reason for that was that most of them would be taken at noon time and that was probably a good light. [Laughter]

Morris: Well, would this be where people gathered to eat their lunches?

Cutter: It could be. We had no cafeteria, either at Sixth and Grayson or later here at Fourth and Parker plant until around 1940. It had to be after 1940, because the first cafeteria was down in the basement of this building and we didn't buy this property from the Byron Jackson pump manufacturing people until 1940.

So, until that time, at least, practically everyone brought their lunches in a paper bag. And probably over there--it's an old custom of the laboratories, initiated before I had anything to do with it--free coffee was served in the mid-morning and at noon. I do recall one thing on that, that when we were going through the depression, everyone was asked to make suggestions for cutting the expenses. That was perhaps the most frequent suggestion we got from the very people who were receiving it and enjoying it--it was: "Well, we could cut out the coffee." But I refused to do that. I felt that free coffee was too much enjoyed. If you ever needed morale--it was in that depression period. So, it was never cut out and to this day it is still maintained. Of course, now it's a much more common custom.

Morris: Yes. It's interesting that the coffee break goes back as far as you can remember and before.

Cutter: That's right. Another factor in this bringing the lunches in a bag was that there was no restaurant here. As long as the laboratory was at Sixth and Grayson--anyway until 1920, the automobile was a very rare piece of equipment, and not a piece of equipment that the average worker could afford. So, they walked up to San Pablo Avenue and took the streetcars. So, there was just no restaurant available.

Morris: While we're on the people here, there's an early photo of the packaging room that's 1906 to 1912, roughly. It's a picture of three or four girls hard at work and it includes a black girl. I was interested that there was a black population here that early and that at least one worked here.

Cutter: Well, very, very small. Now I didn't remember that. I know the picture you're talking of because I just saw it this morning, and I thought: "Well, for goodness sakes! Here I can name the first girl there, Peggy Grant." And I haven't seen or heard of her for--I guess it's over fifty years. [Chuckle] Also, I ran across a photo of my secret sorrow--

Morris: Your secret sorrow as a young man was one of the girls in the packaging room?

Cutter: Oh, yes, yes. Well, I was a young boy in grammar school. Oh, you know that young boys always admire the older girls.
[Laughter]

Morris: Oh, my. Were there black employees right along in those early years?

Cutter: Well, you know that the black population of this area at that time was very, very small. Frankly, I noticed the same thing and I was rather surprised at it because, well, you didn't pay any attention. I mean, it didn't make any difference.

Mr. Twining, as I remember, speaks of Mary, who slept in the incubator at times, the janitress. And I remember that Mary was colored. And I remember that in the very early years, we had a colored janitor. I remember, too, that he had a penchant for polishing brass. [Laughter] Everything else could go, but everything of brass, every doorknob, was really shiny!

Morris: Mr. Twining tells a funny story about there being one telephone in one building and none in the others so that you had to run three blocks. [Laughter] Did you ever have to do that?

Cutter: [Laughter] I don't remember that, no.

Morris: Would that have been an early use of the telephone?

Cutter: Sure, early in one sense. I've forgotten when the telephone was first put into Berkeley, but I'm sure that it must have been prior to the turn of the century.

First Human Products Marketed: 1905

Morris: And the first human products were the smallpox vaccine--and then there are notes in the record books of tests of diphtheria toxins, anti-toxins, and anti-strep serum.

Cutter: And the diphtheria antitoxin and smallpox vaccine became our main human products in the era when I was in the shipping room, which would be around 1911. Let's get that little memorandum book and get that straight, because that's kind of a base.

These are things I didn't know I had. And I see that in 1927, there are memorandums to Mr. Twining and to Dwight Wood--and there--

- Morris: These memo pads are made up in duplicate so that you could pull out one copy and send it off?
- Cutter: Yes. Here was a copy of a memo to Dr. Wood. [Reads from memos] "Veterinary products to be dropped from price list: blackleg serum, mallein subcutaneous, veterinary tetanus 3,000-unit syringe. Drop from list, cut out package entirely: blackleg filtrate, 100 dose; hemorrhagic septicemia serum, 250 c.c. package; mallein ophthalmic, first test package." Those are just things that you may want to look at later.
- Morris: I would. Was that your idea to use those memo pads?
- Cutter: These were things actually that were taking place as I was coming in to the management. It was before Mr. Rahill's death and before my father was taken sick. But, by that time, Dad was not coming down to the laboratories very often.
- Morris: Were these duplicate memo pads already in use when--
- Cutter: I don't know. Here's one from 1931: [Chuckles] "Have shower in the anthrax laboratory completed before February 6." --Now this was to the maintenance man--"Dr. Russell has the most dangerous work on the place, and he has the right to go home to his children without danger of carrying anthrax infection." That was while Dad was very sick.

Maybe I took that little book upstairs. It's just a little memo book. But I'm sure it was around 1911, when I was delivering packages on my bicycle.

Smallpox Vaccine

- Morris: There are records in the Old Timers Room of testing done in 1904 and notes that the smallpox vaccine was first marketed in 1904.
- Cutter: I see.
- Morris: I am interested in tying that into the state of the art. Was the smallpox vaccine a recent discovery at that point?
- Cutter: Well now, frankly, I do not recall what the state of the art in smallpox vaccine was at that time, but my impression would be that the smallpox vaccine--as prepared from a calf--was not a new procedure in this country. It was a new procedure for Cutter Laboratories. They simply went into it because--well, they were in the biological business and they were competing

Cutter: and it was a very fragile product that didn't stand heat. And, of course, in the summer, anything coming from the East or Midwest had to be shipped across--

Morris: The plains and the desert.

Cutter: The plains and the desert. And, as I recall, there was no provision for refrigerated shipment.

Morris: No, that was later. So, the product would not survive coming from the East.

Cutter: That's right. Yes.

Morris: You would have to start from scratch, as it were, making it--?

Cutter: Well, actually, no. Actually, for this particular thing, we could buy the product of whoever--in this country or France or wherever it was--buy that product and use that as the seed.

Morris: Is that similar to the yeasts in French bread, where you use a piece of existing yeast in order to start a new batch?

Cutter: [Laughter] Well, yes and no. This seed was not grown in a test tube or a flask. It had to be grown on a calf. So, you simply inoculated these calves. They were put on a table with their feet upright, strapped to four rising wooden bars. Their belly was shaved and then the belly was scarified by light scratches, hopefully which would be deep enough to break the topmost layer of the skin, but not deep enough to draw blood, although this was difficult to do.

Morris: That would be very delicate work.

Cutter: That's right. Then the vaccine was placed on the calf's belly, and then the calf was held for--as I remember, it varied--a few days, but not too far from a week. Then the calf was brought back and again inverted on the same table and--the calf was sacrificed, chloroformed--and the vaccine was harvested by means of cures or spoons with sharp edges. I know all about that because that was later one of my jobs, and I'm one of the best vaccinated men in the country since I had vaccinations in and around the nails of my fingers--

Morris: From coping with a wriggling calf.

Cutter: No, no, no! From the vaccine, handling--harvesting the vaccine.

Morris: Yes. Did you sedate the calves? To keep a calf upside down for extended periods of time must have been quite a struggle!

Cutter: No. You drove the calf into this same apparatus that was going to have him upside down, but this time it was on hinges on one edge. You just drove him in there and strapped his legs and then lifted the legs up, and there he was, upside down on the table.

Morris: So, you actually turn him 180 degrees?

Cutter: Yes. Right.

Morris: With a crane?

Cutter: As I remember, yes--block and tackle.

Morris: Yes. That would be quite a job. The original seed--was there any problem in getting that from the East or from France?

Cutter: I don't remember. I'm simply saying that this is the probable way that it would have been done. They could have gotten it from--any laboratory doing it could have sent it to them, or they simply could have purchased a vial of vaccine from somebody else and used it as the starter.

I think, for instance, that Parke Davis was probably making a vaccine. All they would have had to do was to get a Parke Davis vaccine that was viable and use it on the calf.

Morris: In other words, you could get a small quantity of usable vaccine across the country to start more, but you couldn't ship--?

Cutter: It just depended. They could, but some lots would come through fine and other lots would be deteriorated. It would just depend --and even in the winter, you know, steam heat in the baggage cars? If the package was along side one of those, why that would destroy it. So, they'd simply buy this, let's say, until they found a lot which was--

Morris: A good batch.

Cutter: Yes. Which would infect the calf. So they'd know that was viable. If it was not viable, why the calf would just not have any infection.

Morris: So that it was a sound economic proposition to try and make it--to develop the fresh vaccine here. You'd lose a lot less shipping it from here around the state than all the way from the East.

Cutter: Yes. That's right.

Diphtheria Toxin

Morris: On the diphtheria toxin, I have a note that the original culture for that came from the New York Board of Health.

Cutter: Yes. Now that was--and maybe, for all I know, maybe the small-pox culture came from there. The New York Board of Health--and I think that was New York City Board of Health--had a laboratory run by the municipality, and they made the diphtheria antitoxin. Now, I don't remember what else they made, but one reason I remember that was that one time we were having difficulty with concentrating our diphtheria--and I presume, tetanus--antitoxins.

We called the New York laboratories for assistance, and Dr. Banzaf came out here and gave us their particular methods and went through and actually did one of the runs with us. This I remember because at that time, that was one of my jobs. I was assistant in the antitoxin concentration, assisting a man whose name was Blackledge. His nickname was "Salty" because they used a salt precipitation method for separating and concentrating the antitoxins. And it was for that that Dr. Banzaf was brought out.

Morris: On those early records, there is a 1906 note that diphtheria and strep serum were ready for use--that's just a year after the human products lab began. So that by the earthquake and fire of April, 1906, you had established a number of lines of human products that were in general distribution?

Bacterial Vaccine

Cutter: Yes. And another one was typhoid vaccine. We were then, by that time, into--I don't know about 1906, but let's say in the very early period after we moved up from Fresno--we were into bacterial vaccines. Among them was typhoid vaccine and staphylococcus vaccine, streptococcus vaccine, gonococcus vaccine--oh, I just don't remember all of the vaccines that we had. Of course, typhoid vaccine is still a proven and used product, but many of these other vaccines have been discarded. I haven't heard of anybody ever putting out gonococcus vaccine for years. Maybe they use staphylococcus vaccines, but it's probably used more as an autogenous vaccine, a vaccine made from the staphylococcus, which is causing staphylococcus infection in that particular individual.

Another vaccine which was probably the most extensively used of our vaccines was a vaccine called MVRI--mixed vaccine for

Cutter: respiratory infection. That was used to prevent colds. Now it didn't prevent colds, but I've always had a sneaking hunch that the vaccine was of some value in preventing the secondary infections of colds. I don't think that it was anything very great, but there were some indications that pneumonia was lowered in instances where the population had been vaccinated with the mixed respiratory vaccines, which contained various strains of pneumococci.

Morris: There is a pamphlet which you judge was possibly written by Dr. Foster in which he is quite confident that there was this connection. How does a bacterial vaccine differ from the products that were being made earlier?

Cutter: You mean, how does it differ from smallpox vaccine?

Morris: Yes.

Cutter: Smallpox vaccine is an attenuated or modified live vaccine. It is produced from living substances. That is, as I told you, the calf is inoculated, the vaccine is harvested, glycerinated, and held in refrigeration for a certain period of time. And bacterial counts are made, because of course a calf like that naturally got contaminated, and the vaccine is tested to make sure that none of the contaminations are human pathogens. It can be contaminated with organisms that are not at all poisonous or pathogenic.

Now a bacterial vaccine, on the other hand, is a killed vaccine made from growing bacteria in culture media--artificial culture media--usually in large flasks, and then washing off this bacterial growth and killing it. I don't know what's used now. It used to be phenol, carbolic acid, in very low concentrations. And then that, of course, is then tested for sterility and standardized--the count standardized--and that is the product. And that's still how the typhoid vaccines are made.

Morris: I'd like to come back later on, when I've read a little bit more, onto the development of your standardizing techniques.

2. YEARS OF RAPID GROWTH: 1906-1916

The Microscope, August, 1940.

History of Cutter Progress

By C. M. Twining

It was in April, 1906, that the Bay area received its great shake-up followed by fire, particularly in San Francisco; an event that changed the course of many things in northern California and especially did it affect the laboratory.

So far as the damage done by the earthquake to the laboratory was concerned, the loss was not very great. Some bottles fell off the shelves but very few were broken and nothing of material value was lost. I don't mean by this that our shake-up on this side of the Bay was very mild because that wasn't so. I remember being awakened by the start of the trembling and standing at my bedroom window, opposite the laboratory, holding on to a dresser to keep it from running over me. Perhaps the fact that the laboratory buildings were of frame construction and built very low, had something to do with our passing through this shake-up without much damage.

However, the office in San Francisco fared very badly indeed. The Rialto Building, in which it was

located, was quite completely burned inside and nothing was ever recovered from our office. We therefore lost all of the office records and some of the laboratory records that had been stored in the office. Things were pretty well disorganized for a few days, then the demand for Smallpox Vaccine and Diphtheria Antitoxin commenced to pour in from the various agencies concerned with the control of this situation, especially the army.

To me this period represents a material change in the laboratory business. First, the amount of material sold in the six or eight weeks after the earthquake brought in a more concentrated lot of money than the business had ever produced before in any short period. Second, there were a good many physicians throughout the Bay area who, in their private work or in their part of the relief work, had to use our material because there was no other available. One can understand the feeling of many physicians up to this time regarding our human products; many of them said to us that they felt that they knew nothing about the goodness of our products. They did have confidence in some of those of eastern manufacture that they had been using, and they felt, therefore, that until our products were proven, they should not give us their business. But here was a time when no other material was available as most of the stock of other manufacturers was in San Francisco and largely destroyed. It is a fact, of course, that the Federal Inspection Act, controlling human products, was passed in 1902, but its effect as an assur-

ance to the physician of the goodness of any of the human biologicals was not appreciated, or certainly not to any such extent as it is today. My remembrance is that we hardly felt this control even in 1906, four years after the act was passed.

I'm sure that this situation, growing out of the earthquake was one of the biggest boosts the human line has ever had. The amount of material we got out in the very limited quarters we had in which to work was really a sizeable one. Everyone in the laboratory, as well as all friends and relatives, were put to work and even Mr. Cutter himself acted as errand boy, bearing an army pass through the guard line thrown around San Francisco. It was our first experience in hurry-up production under adverse conditions. The executive office moved over from San Francisco in a hurry. We wrote all of our customers that we could remember, telling them that we had lost the books and asking them to pay us what they owed from their own records. And so the office set to work again in the one little room that still served as a finishing room and we set out on the second epoch of the laboratory history.

The San Francisco Fire: Epidemic Prevention Supplies

Morris: Mr. Twining cites 1906 as a turning point in the history of the lab, as the result of the earthquake and the fire. Could we talk about that a little bit?

Cutter: Well, the whole thing was that prior to 1906, we were a little, unknown laboratory, and we didn't have the reputation that Parke Davis and--let's see--Stearns, and Mulford, which is the predecessor of Merck, Sharpe and Dohme--we didn't have their prestige. And doctors were kind of loath to change, just as we all are loath to change from something we know and have used for a long time.

However, in 1906, they didn't have anything else to use but Cutter products. And they used them and had good results from them. So, naturally, they then were more confident in their use and our products were much more acceptable then than they had been before.

Morris: Do you recall what that earthquake and fire were like to a small boy?

Cutter: Well, yes. I remember it very well because I was, of course, asleep at the time and I didn't understand what it was all about. I was eight years old, you see, and the whole house just shook and shook and shook terribly for quite a little while, and then it would shake again, you see.

Morris: And you could feel the temblors over here?

Cutter: Oh, gosh! Don't think you couldn't. There were chimneys all over Berkeley that were knocked down, you see. It was a very severe shock here on this side of the bay. Much more severe in San Francisco, but very severe here.

Then, the other thing that I remember was looking out of the upstairs bedroom window--where we had our best view--and just seeing San Francisco up in flames--tremendous fires. My memory is it was around three days before they had it out.

Then, I remember, too, my father. You see, his office was over there.

Morris: Right down town.

Cutter: Right down town, yes. So, he went over there and my memory of it is that he was gone at least one night. And I remember my mother's worry about him.

Morris: I can believe it.

Cutter: How he got there, I do not recall.

Morris: Did the ferries run throughout all of this?

Cutter: I don't recall and that's what I'm questioning--whether he had to go clear around the bay and, if so, how he got there. I just don't know. But, anyway, he did get over. He did find that the Rialto Building had gone up in smoke and that everything in the office--their stock and all of their records. They didn't know who owed them what at that time and that was the reason, you see, for the letter which you will have found up there.

Morris: That's a marvelous letter.

Cutter: It was Dad's feeling that they lost very little in the fire because they didn't have so many customers but that they had a pretty good memory of them. And when they wrote them, the customers promptly paid the bills according to their records.

Morris: There's a ledger that your aunt kept, listing all of those as they came in.

Cutter: You know, I didn't remember that we had that ledger.

Morris: It's fascinating. I think that the thing that interested me most was the range of states where those accounts were. It lists Seattle, Washington; Louisiana; New York City Army Hospital; Nevada; Oregon; Idaho; Arizona; Colorado; Alberta, Canada; North Dakota; Montana; Utah; Illinois--as well as California and a sizable account from the Presidio.

Cutter: Is that so! Well, I'm surprised, too. Now these were probably accounts built up during 1906--

Morris: This is a record of accounts payable in 1906. And then almost all of them were paid by the end of the year.

Cutter: But what I'm suspecting is that these were accounts which were not on our books prior to April 18, 1906, that they are accounts which bought from us after 1906. I'm thinking particularly--not necessarily of the Presidio, because Letterman General Hospital was in existence then.

Morris: The list indicates quite a wide range of deliveries.

Cutter: Yes, it does. Now I don't know about those--let's say those that we sent out after the earthquake, we would know what we sent. I

Cutter: mean, we would have billed them. But, you see, what I'm talking about is the ones which we had sent out, sold and delivered prior to the earthquake. And our accounts of those--all of the copies of our invoices and our statements and our books and our ledgers--were all burned in the 1906 fire.

We had to write--I say "we," but I mean "they."

Morris: It's a corporate "we."

Cutter: That's right. They had to write to the customers they knew of, saying--well, you know what the letter was--that they didn't know what they owed, and would they mind checking their books and letting us have their check.

Morris: Yes. There are also numerous accounts in California, so I suspect that this list is both the list of the new customers and of the old ones as your aunt compiled it. That's interesting that your suspicion is that many of these further states would be accounts that developed after April.

Cutter: Yes.

Morris: Would your father have been sending a salesman this far in 1906?

Cutter: I would be surprised if he had a salesman in Louisiana, for instance, in 1906. I know that he had no salesman in New York.

Morris: Were you putting notices in medical journals, or--?

Cutter: Dad had advertisements for veterinary products, mainly one-inch and two-inch one-column advertisements, in many of the weekly papers which mainly were in rural communities. And, of course, most of even our cities then were rural communities. [Chuckle] These advertisements proved to be very successful.

Morris: So that a good percentage of the business was done by mail?

Cutter: Yes. There was a lot of it, practically all of it, my mail.

Morris: Getting back to San Francisco--was there considerable illness after the fire?

Cutter: I don't remember how much illness there was, but, you see, many of the sewers were broken and the water supply was contaminated. People were hopefully expected to boil their water and all. But, you see, children were children then--what would they do? Little children living in tents around in the Panhandle and in Golden Gate Park and here in Berkeley. So, there was great fear of an

Cutter: epidemic of smallpox and/or typhoid fever, which were the principal ones, I believe, that they were worried about.

So, I think there was more fear than there was actual disease. This is my memory of it.

Morris: Was an official inoculation program set up?

Cutter: Yes. I believe that there was an official program set up, but just what it was--whether it was a municipal one or state. It probably would not be federal in those days. I just don't remember.

Morris: Dr. Twining described it as a period of six or eight weeks in which there were greatly increased sales of these vaccines, and I wonder what you recall of how the laboratory's production facilities met this?

Cutter: Yes. This I have personal remembrances of because my mother and neighbors and her sister--who was at the university--came down to the laboratories and did whatever jobs they could do in preparing these. That would be packaging them, which anybody could do, of course.

Now, just how from the technical side--I suppose everyone employed in the laboratories worked as many hours a day as they possibly could because there were jobs to be done which one had to be experienced to carry out.

Morris: Those vaccines are not something that you can boil up over night. It takes some time, doesn't it?

Cutter: That's right. But, for instance, if we had the stock on hand in big bulk bottles, those could be filled into the final vials, you see. The sterility tests in those days, I know that they were far less exacting than they are now. And probably, under emergency conditions, even they were compromised.

Morris: Was it the custom to keep a large supply of the basic stock on hand?

Cutter: Yes. It took a long time to make them up--a long lead time. So, for that reason--and they were more or less, you might call them epidemic products--it was necessary to keep a large supply on hand to meet emergencies. There wasn't the steady out-flow--in those days, there could be and would be a typhoid epidemic that might strike in a certain area, and a smallpox epidemic in another area.

I remember, for instance, as late as 1925 or 1935 in places like Los Angeles or New York--there were epidemics, smallpox epidemics, which exhausted packaged supplies.

Cutter: I recall one thing. I spoke about the smallpox vaccine having to be aged to reduce the bacterial count, and I recall reading in the Indian Medical Journal--I think it was--of a method of bubbling chloroform through the virus to bring the count down. And I applied that to our bulk vaccines here and it brought the count down precipitously without destroying the potency of the smallpox vaccine.

So, that allowed us to take care of an epidemic, and that particular epidemic--wherever it was--was one that exhausted the supplies of every manufacturer on the coast. And, actually, my memory is that because we developed this method of shortening that holding time, that we actually filled the biggest--this time, clear across the continent. If my memory is right, it was New York.

Morris: When there was a disaster or epidemic of any kind--did the authorities contact you, or did you know that your supplies were going to be needed and start moving them?

Cutter: We're no longer producing smallpox vaccine; we're into an entirely different kind of business now. But in those days, both happened. The newspapers would carry headlines of this and we might have preceded that by getting an increase in the number of orders, or a call from the health officer. It could be any one of a number of things which would alert us, and we would immediately start to put this out.

Innovations in Production Equipment

Cutter: Now, then, there's another little story that came out of these things. The sealing of the smallpox vaccine was in what we call capillary tubes. These were tubes, I would say, about two and one-half inches long and of a very small diameter--certainly less than one-sixteenth of an inch outside diameter. These had to be sealed first at one end, and then sterilized, and then the vaccine was placed in a pan and these, with the open ends down, were placed in this pan--the capillary tubes.

Then a vacuum was pulled. They were put in a bell jar. A vacuum was pulled, and this pulled the air out of the tubes. We learned by trial and error how much vacuum to pull.

Morris: Did the tubes break if you pulled too much?

Cutter: No, but the vaccine would either go too far up in one end of the tube, or too low in the other. You wanted it right in the middle.

Cutter: So, anyway, you'd pull this vacuum and let it come back to room temperature, and that would push the vaccine into the tube. Now, originally, these two sealing operations--the first one and the second one--had to be done by fanning--they called it fanning--these tubes out--and I can still get the motion. [Gestures]--fanning, these tubes out and doing them individually in a gas flame. If you tried to hold them together and to flame them, they all stuck together. So, they had to be done individually.

This, then, would slow up this emergency work. We could keep sealing the tubes at the first end by hand, but then the next end, after we'd get the vaccine in, was even a more tedious job because glycerinated vaccine on the end of the tubes would, at times, not seal quite properly, so it had to be done much more carefully than closing the first end of the tube.

So, we had a chap by the name of Donnelly, who was quite an old chap, but a very ingenious chap and a fine mechanic. He and I got together, and we developed a machine, which was a drum with slots small enough to hold the capillary tubes. Oh! And those capillary tubes had to be revolved as they were being sealed.

Morris: This is actually fusing the glass back together?

Cutter: This is sealing the ends of the tubes so it is a true seal, an airtight seal.

Morris: Yes. So you were actually melting the glass?

Cutter: That's right. Yes. So then, we developed this drum, which was about twelve inches, and the tubes were in a holder so that they came down and were in contact with this drum. The whole thing could be sterilized in this drum.

So, these tubes went up and then there was the gas flame which sealed them. But over the top of this, we had a piece of rubber belting which made these tubes turn in their slots as well as go around. You see, as the drum turned, the belting was stationary. So, the tube kept turning in its slot as it went around. So, it made actually a better, more uniform seal than by hand.

And my goodness! We had an additional gas flame so it didn't have to hold long in it, and that drum just solved our entire problem of getting vaccine out quickly in an epidemic.

Morris: I should think so.

Cutter: One operator could get out more in eight hours than a whole crew had been able to get out in twenty-four.

Morris: I can believe it. That's a remarkably ingenious device.

Cutter: It worked out beautifully.

Morris: I should say so. And you were there with the mechanic working out the process of doing this?

Cutter: This is right. I had the idea and he worked it out and did a beautiful job of it. He was a good mechanic. Well, you see, this was an industry that was a very limited industry, not an industry in which there were thousands of people in. So, really every bit of machinery that we had, we had to develop ourselves.

Let me give you examples, if I may now. The labeling of the bottles until, I would judge, in the late twenties--the method of putting a label onto a bottle or onto the outside packaging--we also labeled the outside packaging--was by taking a zinc board about three feet square, taking a brush which was dipped into a jar of paste, pasting that zinc board, and then, individually, one by one, placing the label down on that. They couldn't be placed one on top of each other. And you'd just go along until that board was filled up.

Then, the bottle was taken in the left hand and, with a knife in the right hand, the label was peeled off the pasted board and put onto the bottle. Well, not only was that a long, tedious job, but you can imagine that the labels didn't get on in a uniform manner. They weren't straight and paste would occasionally smear and get onto the bottle, so it wasn't a nice looking job. And when you came to strip labels, which went all the way around a set-up box, you know, or a container for a syringe or something rather long, then that was quite a job.

Well, we solved the labeling process by going to the company which was making the labelers for beer bottles--the Economic Machinery Company made the World labeler--and put the problem in their lap. They would have nothing whatsoever to do with it because our vials were so small and our runs were so short. First of all, they didn't think it was possible to label a five cc vial on their type of labeler. Well, I saw what a terrible time we were having, and I knew we could afford to spend an awful lot on this machine. They wouldn't make the machine unless we would pay them in advance, and pay them regardless of whether it worked or not. It was take it or leave it.

So, we put out fifteen hundred dollars, which was a very large sum in those days, and ordered this machine with enough fittings to do the sizes which were the most prevalent.

Morris: This meant scaling down their machine to minute--

Cutter: Scaling down their equipment, yes. They didn't like any part of it. [Laughter] So, anyway, that came in and we--goodness! That labeled twenty a minute, I'll have you know! I'd hate to estimate how many one person could do by the old paste method, but I'm sure it would not be many--maybe four, maybe five--and, of course, this did a much better job.

Now, the other part of it--the big set-up boxes with the long labels--we got that problem licked by going to the paper cartons, which we still use, you know. First of all, this saved us a tremendous amount of storage space because each of those set-up boxes came to us all set up and took the full-size space of the box. And the cartons, of course, came all flattened out and we'd have--what?--maybe forty cartons in the space of one set-up.

And the cartons, of course, were printed. So, they didn't have to be labeled. They came to us printed.

Let me give you another one. There was another thing that gave us trouble--filling. We had to fill these bottles and fill them sterilely. Well, there weren't any machines to fill sterilely and there weren't any machines to fill little, tiny amounts like five cc vials. So, again, old Bill Donnelly and I got together and we tried out, first of all, machines with a flow-operated valve.

These were piston machines and it didn't work worth a dime because the flow valve would get--our products were many of them suspensions, and the material would catch around the ball valve, or cone valve. So, and now, this was entirely Bill Donnelly's idea, we went to working that valve with what was known as a Geneva motion. I didn't have any idea what that was, but it was a means of pulling the plunger of the syringe out and letting the fluid come into the syringe, then a hesitation to give it time enough to fill the syringe up, and then a push down of the syringe. We used cone valves, and they were operated mechanically. The flow of the fluid had nothing to do with it. They were operated by this Geneva motion which also operated the push and the pull of this plunger.

Morris: Which could be regulated.

Cutter: That's right. The feed of it was regulated by the belt. As far as I know, some of the modifications of that machine are still in use in our filling operations.

The Federal Government: Patents, Inspecting and Licensing

Morris: Were the labeler and this filling machine patented?

Cutter: No. We didn't patent them at all. Actually, what would be the value of a patent on something you wouldn't know whether anybody else was using or not? Its value was in the process of production. For instance, that vaccine machine--there weren't a half a dozen manufacturers of smallpox vaccine.

Morris: And they would each solve this problem their own way?

Cutter: Well, no. We hoped they'd never learn that we had such a machine. In other words, it was safer for us to use it as a trade secret than it was to patent it.

Morris: That's interesting. Why is that?

Cutter: Well, because you patent it and you put it out. When you patent, you have to publish. And we had no way of knowing how others were sealing their tubes. They could be doing it with our machine and we'd never know it.

Morris: So, each firm hoped that the others wouldn't find out how you coped with the same problem? [Laughter]

Cutter: That's right. Sure. [Laughter]

Let me just go over in my memory if I can think of any other things. Well, I think that those are the main machinery things. There were many other machines and so forth, but they were minor ones.

Morris: Yes. These seem to be widely usable, whatever you were making.

Cutter: Yes. Whatever we were doing, we would have to put it in a bottle, we'd have to label it and we'd have to put it into a package and we'd have to have a label on the outside of that.

Morris: The patent question brings up the two earliest pieces of legislation that I've found, and I wondered how they related to Cutter. The first one was the Federal Inspection Act in 1902.

Cutter: Yes. That's right.

Morris: And, then, the second one, from which all sorts of things have flowed, was the first Food and Drug Act of 1906. So, those would both have been in effect in the early years of the lab in Berkeley.

Cutter: That's right. Yes. I don't remember the 1902, whether that had any effect or not, but--

Morris: That had to do with licensing. Mr. Twining said that even by 1906, it had had little impact on Cutter. But that first letter-head after the fire has a little note up at the top that says "U.S. license, number eight." I wondered what the process for that was.

Cutter: I frankly do not recall. But I do recall that in our early days, an inspector would come around every year to inspect our plant and he would usually stay about three days. Now, rather interestingly, the inspector who inspected Cutter Laboratories would practically always be the then head of the Hygienic Laboratories, as it was known, the predecessor of the National Institutes of Health.

Now, you may wonder why we were so important as all that. Well, it wasn't that. It was because Cutter Laboratories were located in California, and that meant a trip out here paid by Uncle Sam. [Laughter] So, they didn't trust us to any minor official. They had to make this inspection on their own. [Laughter]

But there was an awfully nice man I remember particularly-- Dr. McCoy--and Dr. Harrison. Those were two I particularly remember.

Morris: So this was a federal inspection?

Cutter: Oh, yes. You're darn right it is.

Morris: And if these were the heads of the Hygienic Lab, that would give you--

Cutter: That's the licensing body.

Morris: Yes. But that would give you access to their thinking on things national. I should think that that might have been a very fortunate circumstance.

Cutter: Well, no, they were very fine men and they were a great help. But by that--no, I'm sure that they must have been very helpful, though they, of course, were presumably not passing what's done in one laboratory on to another, except as it might affect the safety of the product. If you were doing something in a less safe manner than somebody else was able to accomplish it, then that would be something else again. But it was very much against ethics and everything else, for instance, if they would see us filling the vaccine in a machine when others were doing it by hand, for them to carry that information to our competitors.

Morris: There was even in those days a question of confidentiality.

Cutter: Oh, yes. Much more confidentiality then than there is now, of course.

Morris: And then the Food and Drug Act of 1906?

Cutter: It didn't affect us early in our work very much because, first of all, we were in biologics, which was licensed by the Hygienic Laboratories, and the Food and Drug Administration was an entirely separate organization.

It was very clear to me that, eventually, the two would be combined. And it was very clear, too, which would be the one which would be the surviving organization. That has just occurred this past year. The National Institutes of Health were absorbed by the Food and Drug Administration. Now, wait a minute. I shouldn't say that. It was only the Division of Biologic Services that was absorbed by the Food and Drug Administration.

Morris: Yes. Not the whole Institutes of Health.

Cutter: No.

Morris: That's an interesting development. I'm coming to the end of the tape and you have a lunch date, but there's one thing I'd like to ask you about. In the front of the 1906 ledger recording the testing that was being done, in a clear, smallish round hand that I think may be your father's, is the quotation: "'Tis a long road to Easy Street and no cars running." I wondered if you'd ever come across that?

Cutter: No, but I'd know his handwriting immediately.

Morris: Yes. I'll bring it down and let you look at it because it sounds like it might have been from him, and I wondered if this was an idea that he'd ever talked about with you.

Cutter: No. I don't recall that specifically. I don't.

Robert Cutter As A Young Man

At the Laboratory

Morris: This morning, I'd like to ask you about your own youth and education. Did you work at the lab as a boy?

Cutter: Probably in 1911 or 1912 was my first contact as an employee of the laboratories, and that was when I worked in the shipping room after school and on Saturdays. I'm not sure of this, but it runs in my mind that my salary was a dollar and a half, or maybe it was two dollars and a half, a week.

Morris: A week? [Laughter]

Cutter: Yes. Now then, my work was putting up the orders in the shipping room to be checked by the head shipping room clerk and then, later on, carrying them up to the post office in a little basket that I had on the handlebars of my bicycle. It was a bicycle that had been bought by the laboratories, the first vehicle, I imagine, that they had ever bought. A very important lesson to me came about upon this bicycle.

The head shipping room clerk had used it to go up to the post office. I don't remember why he had done it and I hadn't, but, anyway, he came back with the bike just an absolute mess. The front wheel was all smashed up. He said that he was just going along and that the front wheel just collapsed. Well, I was just laughing up my sleeve at this cock-and-bull story, you know, that on a bicycle, all of a sudden the wheel just collapsed when he was riding along in the middle of the street.

Morris: That's hard to believe.

Cutter: Very hard to believe. So, we got the bicycle repaired, and about two weeks later, I was riding up to the post office when, all of a sudden, I found myself skidding along the street on my face. I went back to the bicycle which was in exactly the same mess. The front wheel was all messed up, just as it had been before. It was only then that I started to investigate what could have happened. On the fork of the front wheel, there was an acetylene lamp. I found that that lamp was loose on the forks, apparently, and instead of going forward, it had gradually worked itself back.

As soon as the spokes of the wheel caught it and pulled it between the forks, everything stopped immediately. It pulled all the spokes out of the wheel and, of course, the front end went down and I was tossed over. Well, this taught me a lesson--

Cutter: that no matter how improbable the story seemed, not to conclude that the one who told it had to be a liar. [Laughter]

Now, a number of times since then I've found it hard to believe something, only to find out later that the story I had been told was fact.

So, anyway, I worked in the shipping room. Then I was taken into the office to do kind of "office boy things" around the office. And in those days--at least we did, and I think it was more or less general practice in business--each order was personally acknowledged and each check which came in was personally acknowledged. Of course, all that, in the meantime, has been done away with on the basis of lack of efficiency and quite rightly. It was, perhaps, superfluous, but nevertheless, it didn't do us any harm.

Morris: It maintained personal contact with the customers.

Cutter: Yes. So, there were two men in the office then, and one of them took his vacation and I took over his desk. I can remember how important it seemed that here I was, dictating these letters to-- now what did we call them--Charles Dana Gibson--they looked like Gibson girls with the high pompadour and the long skirts and the wasp waists and all. I can still remember the tenor of some of those letters, and it's a shame that we don't have copies of those, not just what I wrote, but the letters of the time.

Morris: Could you recall how the phrasing went?

Cutter: Well, let's see. Now let's say that we had received an order and the general tenor of the letter would be:

"Dear Sir: Yours of the sixteenth instant received and contents duly noted. We are glad to say that your order was promptly assembled and is, we hope, now on its way for early delivery. You may be assured that it was a great pleasure to take care of your needs, and we trust that we will have the same privilege in the future. Truly yours."

Morris: Very genteel approach! [Laughter]

Cutter: Of course, that style went out years and years and years ago. As a matter of fact, I have a pamphlet that I got out quite some years ago and have corrected since, "Letter Writing Cutter Style." I don't know what you do with a thing of this kind, but it's an interesting historical part of our company.

Cutter: Here I note that this was the fourth edition. I don't recall when the first edition was.

Morris: Is this still in use in updated form?

Cutter: I'm supposed to update it again, which I haven't done.

Morris: You found that the girls in the offices needed something particularly for Cutter, even though they'd had secretarial training?

Cutter: I'm sure those letters could have been written--or almost mimeographed--by any of the secretaries, but they just didn't do things in those days. The secretary was a secretary. Who was she to be writing business letters? [Laughter] As a matter of fact, remember that in 1911 it wasn't too long before that that women had even come in to offices, you know. I can remember my Uncle Fred in Fresno showing me their new business machine, which was a typewriter--a wondrous affair with many banks of keys.

And his showing me, too, how much better it was than the old way of writing it out longhand and then making copies on a press.

Morris: Copies of handwritten material on a press?

Cutter: Copies of a handwritten letter.

Morris: This would be an early form of--not mimeograph--ditto. Was it a gelatin kind of a thing?

Cutter: No, I don't think so. I remember that it looked more like a wine press than anything else, a small wine press. In other words, it had a threaded upright thing with a wheel on top of it, and that just brought this press down. Now what was the means of making a copy, I don't recall.

What I am saying is that this was relatively early in the business machine era. Now I recall our first adding machine, which was a Burroughs, and it was quite a monstrous affair. It had--instead of the ten keys that the modern calculator has--let's see, it must have had ninety or a hundred keys. And all it did was add. It didn't subtract or do anything else.

Morris: Were there other boys of your own age working here in those days?

Cutter: Yes. There were other boys then and later. There was no sixteen-year minimum age at that time. And this, I would say, was the opposite of child labor, because most of them were also going to school and this was not an interference with the school.

Morris: And would your father consider this a part of his regular work force?

Cutter: Oh, absolutely! Young boys and girls of fourteen and fifteen--this was anything but a child labor sweat shop, if you get what I mean.

Morris: Yes.

Cutter: Now, in Greece, we went to a pottery or ceramic works--whatever they call them, making dishes and decorating them--and there, I would say that the average age of the child was around eleven or twelve. And this was a very enlightened place, we found out. The light was good--and I didn't mean "enlightenment" in that sense--but the light was good and they were cheerful and they didn't have any boss over them, you know. They were all laughing and giggling and looking up at us as we went through. It was a very cheerful place. But those girls weren't going to school. Now, our girls of that age would probably have been working then and going to night school, I guess.

Morris: In other words, they would be older boys and girls who would be working during the day--

Cutter: I don't know on that. All I know is that this was very sought-after work because it was nice work and had a certain aura of prestige about it, working in a laboratory.

That brings up another thing. Years ago, we had what we called the washroom where they sterilized the glassware which had been used--the petrie dishes and the pipettes and the flasks--we washed them and then we sterilized them. Well, we had a dickens of a time getting workers in there, even though it paid a ten per cent premium over the packaging or filling room--the finishing room, it was then called.

I don't remember just how it came out, but the gist of it was that nobody wished to be working in a washroom. So, we changed the name of that department to the sterile processing department, and thereafter had no trouble whatsoever in having the girls be glad to work there.

Morris: Isn't that interesting!

Cutter: No--well, you'd much rather tell your friends, "I'm working in the sterile processing department" instead of "I'm working down at the washroom." [Laughter]

Morris: That's true. It's true that a change in name could make the difference. Was this a planned thing on your father's part that you and your brothers should work in the lab?

Cutter: I don't know, frankly. I know this, that it was not forced on me. Later on, my brothers worked at the laboratories. I don't

Cutter: know whether after school, but I know they did on vacations. I remember that both of them, though not at the same time, were the assistant to our maintenance department.

We had only one man who took care of plumbing and pipe fitting and electrical work and carpentry and machine work-- just everything, all the maintenance there is in laboratories. He was an Englishman and he much enjoyed having the boss's sons carry around his tools. And if there was anything that the boss's son could do, like tightening something, he would stand by and direct the work while they did it. [Laughter]

Morris: Was he also a gardener?

Cutter: No, he was not a gardener. We had an old gardener at that time-- Manuel, but I don't remember his last name. He retired quite some years ago and he has since died.

Morris: You had mentioned that Mr. Twining was a guide and a mentor when you were a boy working here. Could you recall some of those--?

Cutter: Yes, right. Well, it was only that he was very kindly and not in any way patronizing, nor in any way subservient--just being a friend to boys, not because we were Mr. Cutter's sons. Although, I think he did like us, and we certainly liked him. That usually goes together. When you like a person, they like you--vice versa.

He was very helpful. Of course, as we went along, our jobs--as we grew older--were changed. Now I recall another job-- and I believe this was vacation, in either late high school or early college years. At that time, I was assisting the chap called Mr. Blackledge--or, as we called him, "Salty," because his work was using different salt concentrations to concentrate the diphtheria and the tetanus antitoxins.

Then, at a later date, I was put on to the preparation of rabies vaccine. And, if you'll remind me, that I followed for quite some time and I made quite a number of changes after I came in full time with the laboratories. I don't remember all of the things that I did.

But in medical school, I took all I could get in the way of allergies and later on, immediately after graduation, I took a summer post-graduate course at the Cornell division of the New York Hospital because my mother--and I think I've told you this-- my mother had hay fever and there was not much work out here at that time on hay fever or hay fever products. Actually, it was while I was interning that we brought out our first pollen extracts.

High School and College

Morris: These were the years you were going to Berkeley High and Cal.

Cutter: That's right. Berkeley High--I had pneumonia in my freshman year, I think it was. Anyway, I was out and had to tutor, which I did, and was kept up with my class. I then went on the managerial staff of the Weekly News, which meant that I was soliciting advertisements. And often, as a cub, I would be given the poorest beat of the whole thing where I would, with a great deal of work, perhaps get a one-inch, one-column ad, and often have to write the advertisement myself and, of course, collect for it.

Morris: What was the poorest beat?

Cutter: Well, I mean, that was like the small restaurants and the cleaners and the hatters. They were the potential advertisers who were least likely to advertise and, if they did advertise, least likely to take anything but the smallest possible space. [Laughter]

As the seniors were graduated, why, their better accounts were assigned to those who had served in previous semesters on the bad beats.

Morris: How did you happen to decide to join the newspaper of all the student activities?

Cutter: Well, I don't know. I just enjoyed that type of work. I enjoyed going out and meeting the various merchants and selling them advertising and writing it, when they wished me to, and collecting for it. It was just something that I enjoyed.

Morris: Do you remember particularly any of the businessmen in Berkeley that you dealt with?

Cutter: Oh, yes. I dealt with all of the old businessmen before I was through. Mr. Huston, of Huston's store, comes to mind, and Mr. Naylor, of the First National Bank, and the True Blue Cafeteria. And then there was another restaurant with a name I don't recall now, but which was a very prominent place at the time. There would be Mr. Hink, of Hink's Department Store.

Morris: The elder Mr. Hink? Lester?

Cutter: Lester, yes. He wasn't the elder Mr. Hink then. He was the younger. [Laughter]

Morris: Is it three generations?

Cutter: Yes. Although the older generation, I think, was someplace up in the valley. Then, there were Tupper and Reed, in musical instruments, and Radston's, in stationery. Oh, there was a haberdasher, and I seem to have forgotten his name, but he failed later on. And, let's see--were Roos Brothers then?

Morris: It was Roos Brothers then.

Cutter: Anyway, you see, later on, I called on these same merchants when I was on the managerial staff of the Daily Californian and when I managed the summer session Californian.

But going back to high school, then I was elected manager of the Weekly News--and in that, I had to make the arrangements. Now, there was a print shop by that time in the Berkeley High School, and I had to work with them, and with the editorial department because there was the same old riot as to how much space the editorials had in comparison with what advertising there was in the paper. I worked with people and that was good experience--excellent experience.

Then, I was later president of the student body of Berkeley High School and that was good experience, too.

Morris: What were the issues that the president of the student government had to deal with when you were young?

Cutter: Well, we had all of the student activities and the student budget. It was a rather broad, self-governing student body, and there were usually announcements and so forth up before the weekly meeting of the whole school in the auditorium, and that had a name which I have forgotten. But, generally, the president would have to have something to say at each of these, which was very helpful in public speaking. I got so that it didn't bother me a bit to talk to several hundred any more than it did to talk to five or six.

Morris: How many students were there? Do you recall?

Cutter: Oh, I can't give you the number, but it would be in the hundreds. Even then, it wasn't a tiny country school.

Morris: No. It was four years?

Cutter: No, it was three years at that time.

Morris: It was? Do you recall any issues particularly between students and faculty?

Cutter: No. There were no real terrific issues. No, actually, we got along very well. Well, let's see, then I went on to college. I worked on the newspaper there, too, The Daily Californian.

Morris: Didn't you tell me you and President Sproul made a bargain on that, and it worked out very well for you?

Cutter: Yes. Well, on that one--I had known Bob Sproul as an undergraduate through the Daily Californian. Now, just what my contact with him had been, I don't know. But he was, at that time, the assistant controller of the university, and it was his job then to get a manager for the summer session Californian, which was run by the university. Since it was a summer session, there was no Associated Students of the University of California contact with it. It was strictly a University of California project.

So, I went over what had been the advertising and the income for the Daily Californian--for the summer session Californian and the winter session Californian--in previous years, and made a proposition to him that if I did only as well in getting the income from advertising which was the record of previous years, then I would get far less payment. It was all on the basis of percentage of the amount collected. And I underlined that "amount collected" because it wasn't the amount sold, it was the amount collected. [Laughter]

I don't remember what percentages the previous managers had had, but it was just an even percentage. So, the proposition I made to him was that until I reached a given amount coming to the university, I would get a far lesser percentage of the advertising collected. But if I got more than that, then my percentage went up. And I remember the top amount, where I would get fifty per cent of the amount sold. Well, I'm sure Bob never figured that I would get up to that, but on the other hand, it was a heads-he-won-for-the-university-and tails-he-didn't-lose proposition.

For me, it was a heads I won, but tails I would have lost my shirt if I hadn't sold as much advertising as the previous managers had. So, anyway, we were both very pleased with the way it came out.

At the same time, I ran the YMCA freshman handbook that they put out, and that carried advertisements. So, all in all, I think it was around twelve hundred dollars that I earned, plus six units of summer session credit. So, it was a very profitable summer for me.

Morris: I should say so! You said that it was also a year in which there was a general economic collapse during that same summer.

Cutter: Well, the problem was that I sold advertising in the spring and summer of 1920 and collected for it after the crash of the summer of 1920.

Morris: Do you recall what that particular crash was brought on by?

Cutter: No. I don't. But it was a dandy. I remember that.

Morris: So, that was one summer that you weren't working down here at the lab?

Cutter: No. I didn't work here at the lab.

Medical Training

Morris: Were you already thinking of a career in medicine?

Cutter: Well, yes, or more or less, I had thought of it. But I became engaged when I was in, I think, my freshman year of college, and it seemed such a long, long wait.

Morris: I can imagine.

Cutter: Yes. But, that was one reason that spurred my ambition along to go through college so quickly. As a matter of fact, I had to carry twenty or twenty-one units each semester and would take summer session and intersession. So, I was actually graduated in the class of 1920 instead of in my own class of 1921. By 1921 I had my master's degree, in the four years.

Morris: And your master's was in what?

Cutter: In physiology, which is, of course, a pre-medical subject. Then, I went into medical school. I didn't care at all for the first six months of medical school, which was pretty largely anatomy, which was strictly a memory course.

Morris: Was that on the Berkeley campus?

Cutter: That was on the Berkeley campus at that time. It was strictly a memory course. We had the cadaver, of course, which we dissected, and everyone had to learn where a vein or an artery went. In my mind, that was a very, very unnecessary part of the education of every physician because, if one was going to need to know those, even a surgeon would have his anatomy book out if he were going to operate on something that was in there. He wouldn't trust his memory for it, and yet our examinations were strictly memory examinations--very much of a wasted six months.

Then, we went on in the next six months to bacteriology, which was a laboratory course--not at all a memory course--and biochemistry. Those I didn't resent, but I truly resented the anatomy.

Morris: Had your father encouraged you to become a physician?

Cutter: Oh, yes. He was very anxious that I would become a physician because, of course, his father and his grandfather had been physicians.

Morris: So, it was sort of assumed that, as the eldest son, you would--?

Cutter: Well, it was hoped. Let's not say "assumed." It was I, later on, who hoped and assumed that one of my sons would go through medicine, but none of the three did.

But, no--oh, Dad was very glad that I was going through medicine.

Herbert Evans was professor of anatomy, but as for anatomy per se, he had no interest whatsoever in it. He had his MD from Johns Hopkins, but I don't know whether it was just a rumor or not, but it was that he got his MD only on the premise that he would not practice medicine because his head was so in the clouds with research and all. He was, of course, the one who was very much interested in vitamins and hormones and in embryos and in all that sort of thing--no interest whatsoever in anatomy.

And then another one was Catherine Scott, who was in histology, which is microscopic study of tissue. Now that woman I never have forgiven, because she gave me my final oral examination, which was partly oral and partly looking at slides under the microscope. We had been looking only at normal tissues all that year, and she put under the microscope something that I had never seen before. I said, "It looks like lung, but it is filled with cells. I don't understand it."

And that so-and-so had put a section of an embryonic lung under there and I resent that to this very day! Absolutely! You know, this is a very important thing when you want to go to a medical school because this was the flunk-out section. They used it very largely to flunk students out, so it was vital.

Morris: Why histology?

Cutter: Histology and anatomy. Well, this is a state institution, and they had to accept anybody whose marks were such that they could enter the class. There were--well, you know--people who would get very, very good marks, but are not the best material for physicians. So, I'm afraid that they weren't entirely fair.

Now, I don't think she wanted to flunk me out. I think that this was just her nature because other students complained, too, of her--I don't know having done just that one, but of having given what they considered very unfair examinations. Now, I

Cutter: wasn't flunked out. My poorest marks in college and medical school were in anatomy and physiology, I think I got a "C" or something. But, thereafter, I had very good grades.

Morris: Why did you transfer to Yale?

Cutter: Well, for several reasons. The main one was that I was living at my home here when going to school, and I felt it would be a good thing to cut the apron strings. Another thing was that Yale had a very excellent, young faculty at that time.

Morris: Was Yale more selective than the University of California?

Cutter: Well, they were neither of them easy places to get into. All of them had many that they couldn't take. But, you see, I'd had two years, and I did much better in bacteriology under Dr. Gay and in physiology under Dr. Gesell and in biochemistry--I forget the man's name at this moment. And when I transferred over to San Francisco in the second year, in the clinical work I did very well.

Morris: That was at San Francisco General Hospital?

Cutter: That was at Third and Parnassus--the University of California affiliated colleges, they called them at that time. They were the medical, dental, and pharmacy colleges, and they were affiliated with the University of California. It was the University of California medical school. The University of California Hospital was directly run by the University of California. And, you see, both Stanford and California had part of their faculty over there at San Francisco General Hospital, and it was there that we did clinical work. We would take histories and do examinations and go on ward rounds and that sort of thing. It was very good training.

The men that I particularly remember over there were Dr. Leroy Briggs, in clinical medicine--he was a wonderful man with a wonderful sense of humor--and Dr. Terry, in surgery, and Dr. Lucas, I believe, in pediatrics, and Phil Arnott, who was a resident in obstetrics and gynecology.

It just happens that all those men happen to be Nu Sigma Nu's. That's a medical fraternity which I joined, and they had been in on my initiation and all. So, I knew them, and I think that that was very helpful in establishing--oh, and Dr. Kerr, he was very good.

In any event, I enjoyed clinical work and did very well in it. So, I was able to transfer to Yale University in my third year.

Morris: Had you gotten married along the line?

- Cutter: No. That will come a little later. I lived at the Nu Sigma Nu house in New Haven for about a year. Again, it was clinical work, and a great deal of it which I very much enjoyed in the clinic, in the ambulatory part. I thought I got a very good course in that, which was most helpful.
- Morris: What's an ambulatory clinic?
- Cutter: Where the patients don't--
- Morris: Outpatients?
- Cutter: Yes. Outpatients.
- Morris: So, these are people who are recovering from illness or they're not so seriously ill?
- Cutter: They don't have to be in a hospital bed. But it's more like the practice that a physician gets, you see.
- Morris: That's true--an office practice.
- Cutter: Yes. More like an office practice by far than anything else. These patients would come to rely on us--here we were, just third year students, but they'd ask for a certain one if they liked him.
- Morris: That must have been very pleasing.
- Cutter: Yes, it was. Even though you made no pretenses of being a physician--they knew you were a student--but nevertheless they'd ask for you. Now, I think it was a no-pay clinic.
- Morris: I was wondering if it served the low income parts of New Haven.
- Cutter: Yes, it did. Very definitely so. Goodness! I remember one poor boy who had osteomyelitis--his leg in irons and all that. And that boy--we never learned bandaging the way we learned it there! We had to come in and change his terribly soiled bandages. The whole thing was a very, very good experience. And, as I say, the professors were young men and, later, men who went on in many different schools.
- Morris: These are your fellow students?
- Cutter: No, the professors. Dr. Harvey, in surgery, and Dr. Morton, in surgery, and Dr. Parks and Dr. Powers and Dr. Elliot, in pediatrics, and Dr. Francis Blake, in medicine. It was under him I took my thesis on the bacteriophage. In doing that, I was filtering a specimen. The filter thing broke and splashed all of the stuff all over me, and I came down with Flexner dysentery.

Cutter: That was another lesson I learned on that. I wanted to have the phage--the filtered phage--tried on me as a patient. However, I didn't want to use it if it had live organisms, and I'd had no chance to run the sterility, so I'd asked that a sterility test be run on it. Well, fortunately or unfortunately, it turned out that it was not sterile, so it was not used. However, if it had been, I would never have been convinced that the bacteriophage wasn't the most wonderful therapeutic agent for Flexner dysentery, because about twenty-four hours after it would have been given to me, my temperature and illness just broke and I was a well man.

However, I'd received nothing, so I decided after that that it was very bad business to decide on the therapeutic effectiveness of a one-case series. [Laughter]

Morris: Yes. [Laughter] So that you attributed your recovery to--?

Cutter: Well, it was just a recovery by what they call crisis.

Morris: What other kinds of individual work did you do while you were there at Yale? It sounds as if the bacterial experiment you were doing was an individual kind of study.

Cutter: Right. But that was in my senior year and that was a--everyone had to have a thesis. I purposely took a bacteriological project in the medical division because I wanted to do it my way, and I knew if I took it under the professor of bacteriology, I would be just his hands. So, I did do it my way and, actually, the work that I did was rather interesting. Very, very rarely would the Journal of the American Medical Association publish anything by anyone but a physician. But they did publish this work of mine on the bacteriophage, which I did in Dr. Francis A. Blake's department, with his help and assistance and with the help and assistance of Dr. James Trask.

But both of them were interested in other things, and they were only incidentally interested in what I was doing, so they let me have a free hand. They gave me a desk and a laboratory and let me use all the facilities of their department--all the media and any kind of special media I wanted. It was just a very nice set-up for me.

Morris: And the bacteriology department didn't object?

Cutter: No. Dr. Smith, who was in charge of bacteriology, was a very broad man. I told him frankly, and he laughed. [Laughter] He said, "Well, yes," because he had translated a French book on the bacteriophage by D'Herrelle.

HONORS AND PRIZES IN THE SCHOOL OF MEDICINE

DEGREE OF DOCTOR OF MEDICINE

Cum Laude

WILLIAM COHEN, Ph.B. Yale University 1920.
 ROBERT KENNEDY CUTTER, B.A., M.A. University of California 1921.
 GORDON BOSTWICK MAURER, Ph.B. Yale University 1920.
 ALFRED MAURICE WAKEMAN, B.A. Yale University 1919.

The CAMPBELL GOLD MEDAL, a memorial of James Campbell, M.D., Professor of Diseases of Women and Children from 1886 to 1899, given for the highest rank in the examinations of the course, is awarded to ALFRED MAURICE WAKEMAN, B.A. Yale University 1919, New Haven, Conn.; with honorable mention of GORDON BOSTWICK MAURER, Ph.B. Yale University 1920, New Haven, Conn., and ROBERT KENNEDY CUTTER, B.A., M.A. University of California 1921, Berkeley, Calif.

The KEESE PRIZE, from the bequest of Mrs. Mary M. Keese, received in 180, in memory of her son, Hobart Keese (M.D. 1855), for the most meritorious thesis at graduation, is awarded to WILLIAM COHEN, Ph.B. Yale University 1920, New Haven, Conn.; with honorable mention of FRANK ABRIEL AMATRUDA, B.A. Yale University 1920, New Haven, Conn.; THOMAS JACKSON CHARLTON, JR., B.A. Yale University 1917, Savannah, Ga.; and JOSEPH EPSTEIN, Ph.B. Yale University 1920, New Haven, Conn.

The PARKER PRIZE, from a fund left by Frank J. Parker (Ph.B. 1895, M.D. 1898), for the Fourth Year student who, in the judgment of the Faculty, is shown the best qualifications for a successful practitioner, is awarded to ROBERT KENNEDY CUTTER, B.A., M.A. University of California 1921, Berkeley, Calif.

Cutter: So, anyway, I continued to enjoy my work there, and, as this shows, I was--let's see.

Morris: You graduated cum laude. There are two prizes listed there.

Cutter: I received the Parker Prize for the fourth year student who, in the judgment of the faculty, has shown the best qualifications for a successful practitioner. [Laughter]

Now, there's an interesting sidelight to that! I had made no bones about it that I hoped that I would be able to come with the Cutter Laboratories. And there was some argument about whether it was right to award this prize to a fourth year student who really didn't expect to practice. Those who took the other side said, "Well, this is what the prize is for. We're not concerned with what the man does or intends to do. It's a matter of his qualifications."

Then, the other thing was that I received honorable mention in the highest rank of the examinations of the courses. The thing that I was quite surprised about was that I had not expected anything at all like this. I came up from New York, where I was doing postgraduate work in allergy, for the graduation ceremonies.

I had hoped that I might have maybe gotten the prize for the best thesis [laughter], but I not only didn't get the prize for that, but I didn't even get honorable mention. So, I came up to the university from New York, everyone else in my class knowing about the honors. And when I was in the line to go up and get our degrees, my best friend in the Nu Sigma Nu house said, "Congratulations, Bob! That's wonderful!" And I said, "Oh! Did I get honorable mention with the thesis?" He said, "No. You just got honorable everything else, but no mention on your thesis!" [Laughter]

Morris: That's wonderful! Going back to your thesis, what was the new wrinkle that you were working on in bacteriology?

Cutter: It was called the bacteriophage and it is a phenomenon whereby the bacteria growing on a plate of solid media show what looks to be chunks eaten out of a rounded colony. The name says bacteria eating, of course, bacteriophage. It had great promise. It hasn't lived up to its promise since, but I still am not sure that it has been fully investigated. It could be something that would, at a later time, turn out to be of much greater scientific interest than it has been so far. And that's a long time ago. It was 1920 and that's over fifty years.

Morris: Well, this is the story of medical research, isn't it? Some of these ideas take a long, long time for--

Cutter: That's a pretty long time! [Laughter]

Morris: Were there particular things here in the laboratories' researches that had gotten you interested in this field?

Cutter: Well, no. It was a bacteriological project, and I thought there was a possibility that it might become a biological product. And we at that time, of course, were only into biological products, nothing else. So, I had hoped that it might develop into something back here, and that I would be well prepared for it. But it turned out, at that time, to have no therapeutic value--no known therapeutic value.

Morris: I was interested that you were already into your postgraduate work by the time graduation from medical school came around. How had you decided--?

Cutter: Do you mean how had I decided to go down there?

Morris: Yes.

Cutter: Well, as I said, mother had hay fever.

Morris: Was this a serious problem with her?

Cutter: Oh, yes. Every spring, she had a heck of a time--spring and summer. So, the principal work on this had been done by the group of Cooke, Coca, Vanderveer and Spain, in the Cornell Division of New York Hospital. So, they gave a postgraduate course on this and I took this course and then came back here.

Actually, I had been collecting pollens prior to that time, and had been working along with them. So, when I interned at the San Francisco Hospital--

Emergency Hospital Intern

Morris: This was after Yale?

Cutter: Yes. Of course, when I was graduated from Yale, I had my MD. At that time, the men here did not have their MDs until after they were through their intern year. I'd also taken my board examination and passed here in California, so I was licensed to practice. And only those licensed to practice were sent to the tough emergency hospitals, which in San Francisco then were the Harbor Emergency Hospital and the Park Emergency Hospital. They got the toughest accident cases.

Cutter: Well, I didn't know anything more about it than the men who were in my class, but couldn't go down there because they didn't have their MD. So, at any event, this was playing it kind of tough on the patients, because many times my ambulance at the Harbor Hospital would be out on a case, and they'd bring in some terrible accident case after a fall from a ship, or a crushing, or anything like that. And here, poor little wet-behind-the-ears Cutter was left to take care of it.

I remember that foreign bodies in the eyes were very common, and I learned, at that time, to be quite expert in removing foreign bodies from the eyes.

Morris: That's a great skill. What was the staff in those emergency hospitals? Would you be the only MD on duty?

Cutter: In those hospitals, I was it when I was there. Now, during the day time, you had a nurse and you had an ambulance driver and an ambulance steward. But the nurse went off at six or seven o'clock. We slept at the hospital.

Morris: Were you on duty for twenty-four hours?

Cutter: I guess it was twenty-four hours, because I know we slept there, right in the hospital. So, if the nurse was off and the ambulance got a call, I was it in the night.

Morris: To anybody being carried in by his friends in a million pieces.

Cutter: That's right. [Laughter]

Morris: That must have been pretty harrowing!

Cutter: It was, but I learned a lot. [Laughter]

Morris: So, you would patch them up and send them home, or--?

Cutter: Oh, no. Well, it would depend on the degree of the wound. If it was a terrible accident, why I'd do the best I could there by myself, and I'd have to call for just anybody who came in for assistance lots of times, you know, when I needed another pair of hands to do this or that.

Then, when the ambulance came in, I would dispatch them to either what was known as central emergency--which was a larger emergency hospital, having much more of a staff and having a number of beds or if, in my judgment, I felt it was something that should go directly to the San Francisco Hospital, I would send them there.

Morris: How about the ambulance driver and his assistant? Did they have anything that could be called medical training?

Cutter: Only what they would get through watching. Even in the day time, we'd go on with nothing to do for a couple of hours and then all hell would break loose. We'd have four or five things come in all at once, and, when I was busy, they had to do whatever they could do for the patients that were left. So, they just got practical knowledge, that's all.

Morris: The equivalent of what we call first-aid training now.

Cutter: Yes. That's right.

Morris: Did they stay on the job very long? What was the turnover for the ambulance drivers?

Cutter: Oh, I don't know. But they were old hands. It was a civil service job, and I think one that was very much desired. It didn't take a great deal of time, you know. They had an awful lot of time to themselves. It would be kind of like a fire department job. When you're busy, you're real busy, and when you're not busy, you just ain't!

Allergy Research and Pollen Extracts

Morris: Yes. Now, you said that you had been collecting pollens for some time. Were these pollens--?

Cutter: Of our local plants, native plants and so forth.

Morris: Here in California. When had you started that?

Cutter: I can't tell you exactly, but I would think it would be probably some time between '20 and '23. I don't just remember the time. It was before I was out of college.

Then, when I was interning, why we actually here first introduced pollen extracts. And there's a corollary there. There was another company started up in Spokane by two young men, one a physician and one a businessman. That was Hollister-Stier Laboratories. And they went on, and, of course, my interest in allergy and in allergy products became very diluted by my interest in our other products.

So--and I've forgotten the year, but you'll be able to get that.** It may have been ten to fifteen years ago when the two

**The acquisition was completed in 1958.

Cutter: men, Dr. Stier and Mr. Hollister, were beginning to get near retirement. They started to think of turning the business over or merging, and so we got together. And by that time, their business in allergy was much, much, much larger than ours, but our overall business in medical products was much, much, much larger than theirs.

So, we were able to merge through stock, issuing stock to them. And it was a good deal for them and a good deal for us.

Morris: Had you worked with either of those men yourself as a young man interested in allergies?

Cutter: No. Only as competitors.

Morris: But you knew them?

Cutter: I knew both of them. I knew them both personally because at the American Medical Association, they would have a booth and we would have a booth, you see, for our products. I'd get to meet them and I knew them and liked them both. They were both fine men.

Morris: Did your work with pollens contribute to the first extracts that Cutter Laboratories produced?

Cutter: They'd already contributed. They were it! [Laughter] In other words, I brought out the pollen extracts, collected many of them, bought some pollens, decided on the method of preparing them, did the first part of it and then taught the girls who later took it on how to do it. No, I followed that clear through. I was "Mr. Pollen Extract." It was my project.

Morris: Did you take the pollens from California to New York when you were working in your graduate work there?

Cutter: No. I didn't do anything along that line. I was there strictly to learn.

Morris: The processes and the reactions?

Cutter: The processes and how they extracted the pollens and how they diluted them and what dosage they used and all of that. It was a great deal to learn in that length of time.

Then, I took a trip to every allergy clinic that I knew of, and to every physician doing any allergy at that time in the United States. Actually, at that time, I decided to extract the pollens in a different manner from what they had been extracting them at the Cornell Division, and also to standardize them

Cutter: by weight rather than to try the nitrogen or Kjeldahl standardization.

I felt that was a great error, since a pollen which had no activity to a known sensitive patient would still give you the same nitrogen determination as would one which had a high activity.

Morris: What was the method that they were using that you learned at Cornell and what were its shortcomings?

Cutter: Well, the difference there was that they used no glycerine. They used saline solutions, but no glycerine, and we added glycerine and used the buffered saline when we came out with ours. And I think that ours--and also, Hollister-Stier went to that method, too. I don't remember whether at the time or later, but, eventually, we were doing them the same way.

In any event, when they were merged into Cutter Laboratories, they still kept the name Hollister-Stier Laboratories. We put all of our pollen extract work in their hands. We didn't try to carry it on separately here.

Morris: In other words, there are now no pollen extracts carrying the Cutter Laboratories label. They all say Hollister-Stier.

Cutter: That's right.

Morris: That's interesting.

Cutter: Well, they had just licked the pants off us and all of the other laboratories that had gotten into the field, which included Parke Davis, Sharp and Dohme, Abbott Laboratories and Lederle Laboratories. Just practically every other laboratory had gotten into it. Some had eventually dropped it and some were limping along with it, but Hollister-Stier just really licked them all. They specialized in it and they made a go of it.

Morris: Was this a new area? Had it just recently been determined that pollens were what caused the hay fever and the other allergic reactions?

Cutter: I don't remember the history of that, how new it was, but it was pretty well established that pollens did cause the allergies, and it was well established that if the proper pollens were used in gradually increasing doses and in what seemed to be extremely small amounts, that the patient got through a season much, much better than they did without treatment.

Cutter: Now, my mother--after I tested her and learned what the treatments were, I treated her with our extracts, and she just came through beautifully. As a matter of fact, I taught her--several years later on--to give her own injections to herself. Because, you know, to come from her home up in the hills to down here in west Berkeley for daily injections was quite a thing. And I learned that, with proper precautions, the patient could very adequately do it himself. And it's now not uncommon for the patients to do it.

As a matter of fact, my mother got so expert and accustomed to giving her own injections, she would have none of my injections, even if I happened to be there right at the time she was doing them. [Laughter] She gave them to herself in the thigh and she said, "I do a much better job of it than you do."

Morris: [Laughter] I see. She questioned the gentleness of your touch?

Cutter: Well, she got very expert at it, and she knew when it was hurting, so she could move the needle--push it in farther or pull it out and do it over again--which I couldn't do, you know.

Morris: Is it true that one of the problems with pollens is that each area has pollens that are peculiar just to that area and you have to develop extracts for all of the different kinds of pollen?

Cutter: That's right. Yes. The botany changes a great deal. For instance, in the east, they have a very simple problem, mainly timothy grasses and other grasses related to it. That's in the spring, and in the fall, the common and the giant ragweeds. So, you need the timothy extract, then, maybe mixed with several other extracts. It does very well treating the spring pollens, and the giant ragweed and the common ragweed take care of the fall pollens.

Well, out here on the Pacific Coast, it is a horse of a different color. We have many, many grasses and we have some very, very early grasses. Polla annuala is a form of rye grass which comes out often in January and, occasionally, in December. Then, we have not only grasses, but we have the trees. The black walnuts and the English walnuts and the acacia do some damage if people are right under them. And olive trees and many other various pollens of that kind.

Then, in the fall--oh boy! We have--particularly in the Sacramento and San Joaquin valleys--all kinds of weeds. Let's keep to the common names. There's the Russian thistle. It's one of the tumbleweeds that was introduced that has become a great pest in the San Joaquin Valley.

Morris: How would you introduce a tumbleweed?

- Cutter: It had gotten in through crops and citrus coming into here. Then there were many of the sages and the worm seeds. We just had a little bit of everything in the fall, and it made a very difficult problem. The atriplexes--I have to use the botanic name--they were troublesome.
- Morris: Is this because of the year-round growing climate that we have?
- Cutter: Yes. It's because we have a milder climate, probably, that we have so many more, coming along much earlier and continuing on through.
- Morris: Is what you're saying that California and the western states have a more complex botany?
- Cutter: Yes, and so do the prairie and desert states have a more complex botany. You see, the allergies are mainly caused by wind-borne pollens, rather than by insect-carried pollens. The wind-borne pollens are very light and are produced in great profusion and get into the air, even clear up. Plates exposed thousands of feet up show pollen grains in them, whereas the insect-pollinated plants have a much scantier and a much stickier and heavier pollen, which doesn't get into the air to any extent.
- So, that's why these pollens that I'm not speaking about--the goldenrod is insect-pollinated and in the east, in the early days, most people would speak of the goldenrod fever. They knew that it came on when the goldenrod did. Well, the goldenrod wasn't the cause. It was the ragweeds, which were very inconspicuous. They don't have conspicuous flowers. The conspicuous flowers are to attract the insects.
- Morris: And to transmit pollen that way.
- Cutter: Yes.
- Morris: But it's the same process that is used for extracting the preventive agents?
- Cutter: Yes.
- Morris: That's interesting that the pollen causes the allergic reaction, but you take an extract of that pollen, which prevents the allergic reaction?
- Cutter: That's right. This is really true homeopathy because you start with the dilution of one to ten thousand and gradually work up. Seldom do you work up to a greater strength than one in fifty. And you only inject usually just a few drops of that.
- Morris: Is that a form of building up the patient's immunity to it?
- Cutter: That's right.

Poison Oak and Poison Ivy Extracts

Morris: What is the relation of the pollen products to poison oak and poison ivy?

Cutter: The poison oak and poison ivy are caused by an oleoresin. You may have run across the fact that those still are, to a certain extent, products that we manufacture. Actually, they're not used to the extent that they should be. We forget an awful lot of good work. Physicians go on and see the new things coming on, and often forget something old which is of very wonderful benefit.

Now, in my belief, this poison oak extract, taken orally, is a very worthwhile procedure. However, it is used very, very little now. You know, the Indians used to use it. They used to bite off small pieces of leaves to immunize themselves. Now, of course, that was very dangerous.

Morris: That's brave!

Cutter: You know I didn't bring out the poison oak extract. Dr. Winegarden--and he is a man I haven't spoken of enough because he was really our first full-time research man. He originally got working on the poison oak products and made the extracts of them and then made this product.

Morris: I wondered if the rash from the oil is an allergic reaction when you get the--?

Cutter: Well, it just depends on what your definition of allergy is. Certainly, some people are infinitely more sensitive to the oleoresins of the rhus products than are others. There is no question about it that immunities can be built up, either naturally or, as I say, by taking the drops or taking the injections, or by just plain repeated exposure. People who are very sensitive to it in boyhood, by repeated exposure, gradually have a resistance.

My brother was a case in point. When he would get it as a boy, he used to get it so badly that he would have to be fed liquids through a glass tube. Then, later in his life, he hunted quail and hunted deer and fished a great deal, and his immunity gradually increased--and he also took the drops. Now to what extent what did what to whom, I don't know, but he gradually became relatively immune. He might get just a little in the flexure of his elbow or under the knees or something like that, but never anything like he had as a boy.

Morris: Is poison oak rash a common enough problem that anybody ever did any clinical tests of whether the extract taken orally did--?

Cutter: Yes. They did work on it and quite a bit of work in the early days. Lately, I see occasionally some work has come out on very highly tested products, and I think that eventually it will be recognized. But, again, this is one of those things that the medical profession, in their quest for something new, has forgotten something old, like the old--what's the song"-- "I'm looking over a fourleaf clover that I overlooked before." [Laughter]

Morris: This quest for something new--is that a hazard of the pharmaceutical industry?

Cutter: Yes, of course. You either have to go forward or you go backward in it. You're just always looking for something new. Often, the older products, particularly those which can't be promoted sufficiently and are not sufficiently--well, poison oak extract is a case in point. It's relatively limited, you see, to the Pacific Coast.

Now, you have poison ivy on the East Coast, but there are great areas of the country where they have no rhus plants at all. So, you just can't afford to put out great expenditures to advise the physicians through advertising or direct advertising or publication advertising or salesmen, or whatever you want to call them. So, they are overlooked.

Of course, you get a great deal of criticism now that this isn't the way that a physician ought to get his medical education. But it's the way that many physicians have been--busy physicians. Golly! The reading material now that a physician is exposed to and would have to take to keep up--he couldn't read the medical publications and have one minute to practice. He just couldn't possibly!

Morris: I believe it! You said that, in this business, you have to go forward. Does that mean in the business sense?

Cutter: Both. You've got to go forward in both senses. It's no good to make a product if nobody uses it. If it can't be sold--it may be a wonderful, wonderful product, but it isn't very valuable. Like this poison oak extract.

Here again, I'm perhaps going into a one-case history or a three-case history. We used to have a ranch, which is now under the water in the Briones reservoir. And we had horses over there. Ted's children, Fred's and mine used to have a horse of their own. And before that spring riding season came, the children would remind us to bring the poison oak remedy home--the drops--because they had great faith in them. And usually children, you know, don't ask for medicine.

Morris: No. But they don't like poison oak.

Cutter: They don't like poison oak. An interesting thing in the poison oak extract--I came out of medical school, you know, very erudite and all, particularly since I had had my specialized work in allergy. But I was very much convinced that poison oak was a contact disease, so much so that I took two bottles of our poison oak extract, vaselined my lips, and drank them down all at once. Well, I could have killed myself.

Morris: Literally!

Cutter: Literally, yes, as I learned later. But, fortunately, all it did was bring on a good dose of poison oak.

Morris: Internally?

Cutter: No. Externally. Taking it internally brought the poison oak out externally. So, my knowledge was wrong, and I proved it to myself very quickly.

Morris: In other words, your theory was that you had to actually touch the leaf?

Cutter: Touch it, or the leaves touch you. Yes. I thought it was a contact disease. This was what was taught to me back at the Cornell Division of the New York Hospital.

Morris: That's an interesting carry-over of mythology. I'm from the East, and there is the same legend about poison ivy.

Cutter: Oh, yes. Well, they're the same plant really. Botanically, there is very, very little difference, and the oleoresins are probably identical.

Morris: But you still need the specific extract to contact your local plant?

Cutter: Yes.

You asked me when I was married, and we never did get to that.

Morris: Yes. Did you manage this before you finished medical school?

Cutter: I was married in the last year of medical school at New Haven. I went around beforehand. My wife-to-be was graduate-trained in kindergarten, and I got a job for her in a private kindergarten for eighty-five dollars a month.

Cutter: We had that, with what my dad had sent me the previous year and what I had saved from my twelve hundred dollars. I convinced them that I could go along on that same amount married, and I did. We did work that out and we could get along.

Morris: Oh, my! Being a whole continent apart was too much. You decided that you were going to get married, even though you hadn't finished medical school.

Cutter: That's right. Oh, yes. A thing happened on that. We had been married about six months when we bought a secondhand Baby Grand Chevrolet. I wrote a letter home to tell the family about the car, and the word "Baby" appeared at the end of the first page. They were relieved to turn the page and to see that the word only referred to a car!

We sold the car in two weeks, and then bought a used Model T Ford, which we sold when we left New Haven for more than we paid for it. It cost us only our gas for the time that we used it.

The first car that I ever bought was a Chevrolet. I bought it in Bridgeport and then brought it up to New Haven where there was a much better student market. I sold that car at a profit, too.

Morris: You must tell me your approach to salesmanship. You seem to have a gift for it!

3. ACHIEVING FINANCIAL STABILITY: 1916-1926

The Microscope, September, 1940

History of Cutter Progress

By C. M. Twining

As stated previously, the history of the laboratory seems to fall very logically into four periods: the one going up to 1906 which we have just completed; followed by the years from 1906 to 1916—a period of rapid growth and financial drouth; then from 1916 to 1926—a period of steady growth and an approach to financial stability in 1926. Then there is the period from '26 to the present day—a period of continuous growth and an entry into adult industrial life.

The little boom given the business by the sales following the earthquake in 1906 resulted in a better financial condition for a while, but it resulted also in the necessity for more room and more equipment and an increasing personnel. The office work before long required more than its little room and so we set about building a combined office and laboratory building.

In the next few years we acquired an old house and some ground which lay on the Grayson Street side of the laboratory property; and, not long thereafter, as it seemed things were going along pretty well, we bought the property up to Grayson Street.

The Microscope, October, 1940

One of the outstanding events during this period was the influenza epidemic of 1918 which resulted in a tremendous increase in the output of bacterial vaccines of the respiratory group. This demand rose rather suddenly in September of that year, and through September, October, November, and December the quantity of bacterial vaccines produced in the laboratory rose to new heights. It resulted in some relief from the financial drought but not nearly enough to clear it up.

A look into this period will show one of the most potent reasons why this laboratory will never grow rich: the demand for all of the respiratory vaccines was much greater than could be supplied. If we had been in the business of supplying food stuff, dry goods, pig iron or most any other substance, the selling prices would have gone up tremendously. In biological laboratory work these things do not occur, and, in spite of the fact that this tremendous demand existed,

prices in no instance advanced, in fact there was a very definite amount of the vaccines that were given away where the need was great. I mention this instance to show that we are in a business that has certain ethics that are always present, and to make a "killing" due to human needs is a thing that rarely occurs and never through soaking the needy through higher prices.

We found throughout this period the necessity of adding new products, or, what was more often the case, improved products, and to increase the area in which we did business so that the business was always on the increase. We didn't dare at that time and certainly we don't dare now to stand still.

It was in 1926 that we decided to drop the hog cholera production and move the main plant from Sixth and Grayson to its present location at Fourth and Parker. And so bag and baggage in October of that year we landed at this location.

Date of Interview: 11 October 1972

Getting Good Men to Work Together

Cutter: You were asking me about the little three-by-five card that I have, which I had for my own edification, that says: "Management is getting good men to work together for the common goal." You can say many, many other things, but actually, this is the gist of what good management is. This is my own definition of it, which I used for myself to emphasize to myself how important it was that I had a good team.

Now then, you asked if there was anything else. I couldn't think of anything, and yet, just yesterday, the matter of judging certain men came up when I was discussing them with David Cutter, my son, who is now president of the company. I recalled that in past years, I had used various ratings and also gotten them of myself by my confreres, including my two brothers, who could be rather severe in their ratings of their older brother. [Laughter]

But as I got along in business, I gradually shortened that list of things that a man--an executive, I'm talking now about an executive--should be rated on. I have just three words. Is he effective? It doesn't make any difference whether he dresses well, whether he speaks good English, whether he does any one of a hundred things which he might be rated down on if you had a big, long chart. If he's effective, he's effective.

Cutter: On the other hand, he could be rated way up. He could dress beautifully and speak beautiful English and have wonderful manners and everything else, but just not be effective.

Morris: What do you include in "effective"?

Cutter: Effective--he does his job well. Now, included in a minor way would be: is he material for promotion to a higher job? But then, he would be rated on that when he was in that job. Is he effective? Of course, one of the parts of his effectiveness would be how good a job he could do if it were a bigger job.

Morris: Yes. What kind of clues are there on that?

Cutter: Your woman's intuition! [Laughter] That's all. There's no way that I have ever found out that I could be sure that a man would do a good job in any position until he had been in there and tried it. And I've had men who I was sure would do a good job fall flat on their faces; and other men, whom I'd had to put into a position with my fingers crossed because somebody had resigned or died suddenly, or something of the kind, and yet, they've risen to the occasion and been very, very fine men.

Morris: Did your father have any rules of thumb that he used for evaluating the effectiveness of his men?

Cutter: I don't think he did because, like the son who followed him, he made many mistakes and some good choices. [Laughter]

Morris: So, what you're saying is that there is always an element of luck and risk.

Cutter: That's right. And this goes in spite of all the things you can do in your psychological tests. Again, it comes down to your judgment plus your psychological rating. That may weed out an occasional misfit, but, on the other hand, it may also throw out some very, very valuable men.

A Reputation for Quality

Morris: That reminds me of a pamphlet I found in the files called "The New Therapy," put out about 1909 or 1910. It included quite a lot about the company's standards and beliefs. I wonder if you recall that pamphlet? [In permanent Oakland Museum display, 1974]

Cutter: A little, grey booklet. Yes. But I must admit that I haven't read it probably for twenty or thirty years, so I can't comment on it.

Morris: One of the things it said early was that they had started out seven years ago with nothing but good intentions, but that now Cutter felt that they were producing some of the best biologics in the world. And one of the indications of this was that in all the years that the federal government had been inspecting the plant, there had been no recommendations or no suggestions for change. I thought that this was pretty remarkable, and did this continue on through the years?

Cutter: That they suggested no change?

Morris: Yes.

Cutter: Well, no. And I think a good part of that was the change in the men who would be coming out and in the gradual--how should I say? I don't think, as of now, that any inspector would go into any laboratory, conceived in heaven or anything else, without finding at least something to find fault with. Part of that, of course, is that they are rated with their superiors on finding fault. So, no, I shouldn't say that.

I would say that if one of the inspectors now went through a plant as it was then, they would undoubtedly close the plant tomorrow. In other words, what we're doing now and the way we're doing it is so much better, the care and all is so much better, that there is just no comparison. As we look back now, it was very, very crude. It had to be. The whole world was just an infant in this area.

Morris: In production methods?

Cutter: Production of biological products. The sterility testing hadn't been worked out and good manufacturing procedures--the whole thing has changed so tremendously that--yes, I think that we have a very, very high rating in the minds of the people who had been in charge of licensing our biological products, our procedures and so forth, through the years. And also, we have a very fine reputation with the Food and Drug Administration as a company which is doing their darndest to produce fine quality products.

Morris: As early as 1910, this same pamphlet said that the federal government sent standard units of the various products regularly to all licensed laboratories to standardize your production against.

Cutter: Yes.

Morris: And also, there was a note that you examined competing products purchased on the open market. Do you recall any of the--you know, did you all test out pretty much the same?

Cutter: I just don't recall that.

Morris: Is this business of analyzing competitors' products still continued?

Cutter: Oh, yes. It's still continued.

Morris: Is this to get an idea of improvements they may have developed, or just as a quality control?

Cutter: To check on how your product stacks up with the competition.

Tetanus Vaccine and Other World War I Contracts

Morris: The other pamphlet from those early years that I was impressed with was one dated 1915 on tetanus antitoxin, and it was called "A Professional Review."

Cutter: I don't remember that particular one.

Morris: What impressed me was the fact that there were about fifteen pages of discussion of research in other countries and from professional journals. Was this a usual procedure for pharmaceutical companies to provide this kind of professional material?

Cutter: Well, now, without seeing that particular one, I wouldn't know.

Morris: It read like some of the articles that one reads in a medical journal.

Cutter: Oh, yes. Reviews of that kind are sent out from time to time. They have been from us and from other companies, yes.

Morris: Who would have done the writing of such a thing?

Cutter: Now, I don't know whether that was before Dr. Foster's time or afterwards. It could have been Mr. Twining or Mr. Trowbridge.

Morris: I find Dr. Foster on the letterheads that you date 1910 to 1914.

Cutter: 1910? The writer would have been Dr. Foster. By the way, did you find those two very early letterheads? Are they in that file?

Morris: Yes. The one before the fire and the one after the fire. Now, in reading the pamphlet on the tetanus antitoxin, this was developed before the first World War, and the literature said that it was used in treating wounds and that massive doses

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Morris: were given. Then, there was a note saying that the usual prophylactic dose of antitoxin is eliminated from the human body in eight to ten days. I'm familiar with tetanus now as one of the regular immunizations--

Cutter: Well, you see, you've got two different things there. He's talking about the prophylactic dose of the antitoxin, which was, in those days, fifteen hundred units of antitoxin developed from horses. That is a borrowed immunity.

Now, what you're talking about now in the present times is probably tetanus immunity lasting for months and years.

Morris: Yes.

Cutter: All right. That is an entirely different product. That is a tetanus toxoid and that produces, instead of a passive immunity or a borrowed immunity, it produces an active immunity. It makes the person's own body create its own antitoxin to take care of a tetanus infection, should it occur.

But now, just in that light, we have relatively recently, and it was a Cutter first, developed the tetanus antitoxin prepared from human plasma. And that eliminates practically all of your allergic reactions, which did definitely follow the use of horse serum.

Morris: And it was the horse serum that was used for treatment of wounds?

Cutter: Oh, yes. It was just within the past eight years, I would say, that--and I don't remember the exact date on it--we developed the antitoxin from human beings.

Morris: Tetanus antitoxin was a product that was produced in large quantities by Cutter during World War I. Was that while you were in medical school?

Cutter: Well, that would be while I was in late high school and early college, you see, because I tried to enlist when I was in high school, but I'd had this back trouble and I'd been in a plaster cast and a brace for a year or so. I had a stiff poker back, and I was not accepted.

Morris: That bad back would not be very good for military life.

Cutter: No.

Morris: So that you were around. Did you participate at all in the tetanus work?

Cutter: I had nothing to do with the research of that. I was simply there as a helper to the man, Salty Blackledge, whom I have spoken of several times, in the concentration of the tetanus and the diphtheria antitoxins.

You see, as it was bled from the horse, it was weak and so, the tetanus antitoxin was concentrated by a salting-out method, and, therefore, the concentrated material had a great deal of the horse serum fractions removed and it caused much less reaction than did the raw antitoxin just from the plasma of the horse. Furthermore, if it was to be used therapeutically rather than preventively, tremendous doses would have had to have been used if it hadn't been concentrated.

Morris: I came across a mention of a diphtheria globulin.

Cutter: That's, again, the concentrated antitoxin.

Morris: I'm familiar with the globulin in recent years, but this is an early mention of it.

Cutter: Well, all right. This refers to the various fractions. For instance--and I'm kind of going back now, as I recall from my concentration days--there were eu-globulins and pseudo-globulins. As I recall again, both with the tetanus and the diphtheria antitoxins, the antitoxin--the immune bodies--were in the pseudo-globulin fraction.

Morris: These must have been very much in demand during World War I?

Cutter: Oh, yes.

Morris: Would you have shipped overseas from California?

Cutter: Well, we could have shipped right here to the medical center here and they would ship it. Now, I don't recall whether we shipped it or they shipped it.

Morris: And the diphtheria and the tetanus would have been useful for the people in the trenches, in combat?

Cutter: Yes. Particularly the tetanus, you see. The diphtheria was simply an infectious disease, but the tetanus followed your wounds. Diphtheria didn't follow wounds. It was an infectious disease, passed from one soldier to another. But the tetanus would follow the wounds.

Morris: Gangrene, I understand, was a medical hazard in the first World War. Were there any products that--?

Cutter: Well, there was a gas gangrene antitoxin, but whether that was during the war or not, I don't recall.

Morris: But that wasn't anything that Cutter got particularly--?

Cutter: Well, yes. We did produce the gas gangrene antitoxin, but in my memory, it wasn't a particularly important product for us during World War I.

Morris: I also came across, in 1915, a product called thromboplastin.

Cutter: Yes. That was developed from the brains of rabbits, as I recall. I should recall, too, because I brought it out. Is that right, or did I miss it?

Morris: It could well be, because in the Cutter pamphlet, dated about 1922, it says that by 1919, thromboplastin was a first choice for its plasma and blood clotting effect. It sounded like quite a new development. Was it in production in time for military use?

Cutter: No.

Morris: So, you say that you brought it out?

Cutter: Well, I brought it out for us, not for the whole world. That was not a Cutter first as a product. In other words, it isn't like the human tetanus antitoxin, which was a Cutter first in the world. This was just a first for Cutter. Others had had it out. It never became an extremely important product.

Morris: I wondered if it was a point along the way in the later development of the blood fractions and plasma?

Cutter: No. It wasn't.

Morris: It didn't contribute at all to them?

Cutter: No.

1919 Flu Epidemic: Respiratory Vaccines

Morris: All right. That clears that up. In this period, Mr. Twining points out that World War I needs produced a solid financial position for Cutter. I wondered if the flu epidemic that followed it right afterwards produced a great demand for Cutter products?

Cutter: In 1919?

Morris: Yes.

Cutter: Well, there was a great use of pneumococcus antitoxin, probably with no benefit, and also considerably increased use of the mixed respiratory vaccines. But aside from those two products, no.

By the way, you're talking about the university-- it may not be recorded that during that period, they had a Students' Army Training Corps. They had many buildings, which were at the west end of the campus, for barracks for the men who were in the Students' Army Training Corps. During that time, I was in the medical corps--a sergeant in charge of that barracks--and the epidemic hit us right at that time.

Everyone went around in masks, and we took one barrack and made it into a hospital. There were many students who were sick at that time, and several of them died. Those of us in the medical corps were working pretty much around the clock, and they were drawing on doctors. I remember the head doctor of the thing. I don't recall his name, but he was a little professor of physiology up at the University of California who had an MD, but who hadn't treated a patient for years and years and years! [Laughter] He was pretty much a frustrated, swamped little guy!

Morris: I should think so! Yes, in fact, I understand that they closed the university for two or three months.

Cutter: I didn't remember that.

Morris: On the respiratory vaccines, we have a pamphlet referring to the special bacterial vaccine number one, which had pneumo, staph and strep strains. The comment was that Cutter had hesitated to put this out except on special order, because it seemed to savor of empiricism. I wondered what the story on that was?

Cutter: What year was that?

Morris: I would judge that it's around 1912 to 1920.

Cutter: Well, it sounds like Dr. Foster. I just don't remember that pamphlet or what it referred to.

Morris: Then the vaccines apparently were refined and became fairly standard, because there's another pamphlet in 1936 about the MVRI Cutter.

Cutter: Yes. Number one and all those were abandoned somewhere along the way. And your MVRI #4, as I remember, was the one which replaced them.

Morris: I wondered if this was a departure to market a vaccine that had the strains of several bacteria?

Cutter: No. That was very common in those days to get as many strains as you could into a vaccine.

Morris: Are there hazards to mixing them in one injection?

Cutter: Only that you might get reaction. But they were all standardized by millions per cc of bacteria, so that in itself--the fact that they were mixed strains--wouldn't be any factor. The thing that would be a factor would be if one of the strains was more reactive than the others. You know, your typhoid vaccines, for instance, and your para-typhoids particularly, are very likely to give one a very sore arm and, often, to put one to bed.

Morris: Yes. Particularly as the dosage gets larger and larger. Mr. Twining said that a quantity of the respiratory vaccines were given away during the flu epidemic of 1918.

Cutter: This I don't recall.

Morris: I wondered if this were local or if there were really bad, widespread outbreaks?

Cutter: I just don't recall. This brings up something, though. Early in the history of the company, my father instituted the policy of supplying our products free when the doctor would say that the patient was unable to pay for it. But that policy had to be abandoned. Now, whether it was because the doctor didn't want to press too much, or whether he judged one not being able to pay as being out of line, or whether there were just too many patients who couldn't pay, I don't know.

But anyway, the policy had to be abandoned because just too much of it was going out free--we couldn't afford it.

Morris: This would be on a single patient basis, too, wouldn't it?

Cutter: Yes.

Morris: That could get sort of complicated.

Cutter: Yes. And, of course, we had no way of checking at all what the score was.

Morris: What were the prices?

Cutter: I think that you'd better get those out of the price list, because it would be strictly long, long-time memory.

Competition

Morris: Moving over into the veterinary products, this letter that your father wrote to salesmen in 1920 is a very interesting document. He said that he was concerned about the salesmen and price competition, and he pointed out that when he was getting started in the business, he sold the powdered blackleg vaccine at ten cents a dose in a market in which the government was giving away the vaccine for nothing. He was a brave man to go up against a situation where it was being provided free. Was this nationwide?

Cutter: No, our business in this time was quite--it was definitely, let's say, Pacific Coast. Oh, we had a few customers around New Orleans and a few around Chicago, but I would say without question that about ninety per cent of what we sold was sold right here on the Pacific Coast.

Morris: Was it customary for the government to--?

Cutter: In the early days, they--yes, they used to manufacture various products. I wish I could remember some of them. For instance, the state for some time manufactured a chicken pox vaccine for-- a fowl pox vaccine, I should say. I remember that was in my time, because I later took up the cudgel with Bob Sproul about it, whether it was any factor in what was done. Eventually, the state--that was the University of California--discontinued supplying vaccine.

I just felt it was a very unfair thing for an institution not only having to pay no tax--but we had to pay tax to support the institution, and then they produced a vaccine. Now whether theirs was free or low cost, I don't remember. But I do remember going to Bob Sproul and discussing with him the unfairness of that.

Morris: This would have been the State Hygienic Lab that was on the campus?

Cutter: No. It was not the hygienic lab on the campus. It was the poultry division. It was up in Strawberry Canyon, just above the stadium, some old wooden buildings up there.

Morris: I think they're still there.

Cutter: Are they? There used to be a swimming pool up there which I used in summer school times, an outdoor swimming pool.

Morris: Predating the--there are two very handsome ones up there now.

Cutter: Oh, I'm sure that it was predating those, because it was anything but a handsome pool, and the dressing rooms were just-- I don't remember whether it was coeducational even, whether it was for men and women.

Morris: Fascinating! But your father did compete with the government and eventually, the federal government discontinued distributing?

Cutter: Yes.

Morris: Would their reason for distributing it free be that until an organization like Cutter came along that could produce it in quantity, there wasn't a supply?

Cutter: I don't know.

Morris: Do you recall this letter that your father wrote in 1920, in which he is describing his own experience as a background to--?

Cutter: Oh, yes. I've copied that several times and sent it out to the fellows.

Morris: Would you talk a bit about what he meant by selling the house and not selling the buyer?

Cutter: Oh! Selling the house--that was from his experience as a pharmacy druggist. The salesman who would come around and sell--let's take some other firm, say sell Parke Davis--and say what a fine house it was and all, and how much better they were, rather than to try and set a price that was lower than Stearns' or Mulford's, two other firms of that time.

Morris: What was the situation on price competition, because that seems to be what he was particularly responding to?

Cutter: Well, just that we had lots of price competition. Dwight, as you see, is in 1940 repeating this. This "GDW" [refers to sheet] is G. Dwight Wood. He says: "His reasoning applies today, just as it did twenty-one years ago. And I think that now, as we approach the new year, we can well afford to remember his advice as we seek new business."

That is: "Don't come back to me and tell me how much lower the others are selling." Somewhere in here, Dad said when he was in the drug business, he remembered [reads from sheet]:



Dr. Bob's Column

Special Anniversary Number

Instead of "Dr. Bob's Column," I thought a letter from my Dad, Edward A. Cutter, Sr., written 37 years ago to our sales representatives, might be more in keeping with our Sixtieth Anniversary issue.

The Mr. Rahill he spoke of was then General Manager (he passed away in 1930), and the "Wood" is Dwight Wood, formerly in charge of sales, who has been retired for about 10 years.

Dad passed away in 1933.

January 16, 1920

"You have missed Mr. Rahill's genial 'Ginger' letters, and you are going to miss them for a while, for he went away physically and mentally tired out, and is to stay away long enough to recharge his storage batteries thoroughly.

"What 'ginger' you get, unless it is 'Jamaica unsweetened,' which you can buy from your druggist friends, will come from the young men here—Galloway, Clopton, and Wood, who are training to take care of so many things that Mr. Rahill thought could only be done acceptably by himself.

"We want him to come back and find so much routine lifted off his shoulders that he will have time to visit with you unhurriedly when you come in here or goes out to see you on the job when he feels like it.

"**BUT YOU 'BOYS'** have got to help in one way in particular and that is quit your striving to get business on a price competition basis only, working for the buyer instead of for the house.

"Now don't mistake me. 'Working for the buyer' is just what you

should do in the matter of keeping him from overloading, looking after his stock, helping him secure customers, and raising merry hell with the house if it falls down on service.

"Now don't let the shrewd buyers 'cave you down the bank' on prices, no matter if ours do happen to be higher.

"**AS A BUYER,** I commenced when I was fourteen for my father, and at nineteen for myself, I knew when I was up against a waverer who would try to get me a lower price if I talked a little mysteriously about what others would do, and I worked him accordingly. I knew, too, when I was up against a 'no surrender' man who believed in his house and that the price asked even if higher, was justified because his house put out the product,—and generally it was justified and I could sell his house's products at a higher price to my customers because I, too, believed in the house producing them.

"Now some of you put business over, good business too, without bothering us with continual 'unanswerable' arguments as to why this or that one should get something 'a little special'; but others of you are continually hammering for competitive, or even lower than competitive, prices.

"What do you think salaries and expenses come out of? Gross sales, or net profits?

"Darn it, if I could establish and build up the substantial nucleus of this business that I did when our chief product was Cutter's Blackleg (Powder) Vaccine at

10 cents per dose against the Government's powder Vaccine for nothing, I have a right to insist that you shall sell our products now on something other than a price-competition basis.

"There are times I shall be willing not only to meet competition but cut below to meet dirty tactics, particularly in some of our old territory where, through dirty tactics, we have lost business.

"**IF IT COMES** down to finals, and dog-eat-dog tactics are necessary to bring certain people to time, they will sure get a bellyful. Some of them know something about past scraps when's didn't come out loser and there may be another show-down.

"The thing to bear in mind, however, is that among the older houses there is the knowledge born of past experience, that 'price-fights' really benefit no one, least of all the salesmen, who often start

(Continued on page 8)

them trying to make a showing based on gross sales rather than net profit. And as for our business, I want salesmen who can 'sell the House' rather than match prices to get business.

E. A. Cutter."

Cutter: "As a buyer, I commenced when I was fourteen for my father, and when I was nineteen for myself." He knew when he was up against a waverer, he'd just make hints, you know, that others were selling it for less. Then the salesman would go back and try to get a better deal from him.

It might be that the salesman would, at that time, have had a better price than the others, but Dad would just try to work them down. This is a common practice among buyers all over the world. It has been as long as the world has been going, and I'm afraid that it will be for as long as it continues to go. [Laughter] They try to beat a better price out of the firms they're buying from. That's why they're in business.

Morris: In other words, because they're dealing with one salesman at a time, they're playing one against another?

Cutter: Oh, yes.

Morris: How much leeway did a salesman have in the price that he could sell for?

Cutter: Well, he had no leeway at all. but he's coming and he's constantly battering, in this case, Dwight Wood, and, in the other case, Mr. Rahill, for a better price.

Morris: In the same letter, your father says that he will, upon occasion, cut prices to meet dirty tactics where he lost business in his old territories. And I wonder if you recall him describing some of these situations where he was in a scrap on prices?

Cutter: Oh, we're in scraps on prices all--we were then and we are now. It's a competitive field.

Morris: You're in scraps with other manufacturers?

Cutter: Oh, yes. They'll go in and offer a lower price where we have a customer, and sometimes I'm afraid that our boys do the same thing. It has to be approved by the home office, but that's what they say. They come back with the buyer's story, and I remember in those days, when they wanted a lower price, they had to have a copy of an invoice or the invoice itself from a competitor before they would hear of our lowering our prices. And the reason was that buyers would just give these salesmen a cock-and-bull story.

Morris: And the salesmen would--?

Cutter: It's a lot easier to sell on price than it is to sell on quality or on what a good guy you are or any other reason. Of course, what a buyer is always trying to get is a better price.

Marketing Methods

Morris: Yes. And this was individual drug stores?

Cutter: Oh, yes. Well, they'd also be calling, in those days, on the ranchers. In those days, your veterinary business went largely through drug stores to ranchers, although some of it with large ranchers would be direct because they could buy it for a better price direct.

Morris: At this 1920 point, were there wholesalers?

Cutter: Yes. There were wholesalers, but, actually, most of our business came outside the wholesalers. The wholesalers did a better business for the larger eastern houses than they did for us. So, we were here on the ground, and we could do a better veterinary business by going direct and do it at a better price to ourselves than we could going through the wholesaler.

Wholesalers--their salesmen are out selling hundreds of different items, and the veterinary biologics or human biologics would be a very small part of it. So, they weren't about to go out and sell Cutter merchandise. We had to go out and sell it ourselves. So, instead of putting it through them, as some of the Eastern houses did, we took it direct.

Morris: Did you deal with the physicians directly?

Cutter: Very, very little. With the pollen extracts, yes. We dealt almost entirely with the physician himself, and almost entirely by mail. Although, if they wished to have it come through a pharmacist, we would send it to the pharmacist and give the pharmacist a commission, but the doctor would get it for the same price.

Morris: In other words, the physician would be the person ordering. I find price lists including discounts. Now, were the discounts on the material sold to the druggists or the ranchers or to the wholesalers?

Cutter: Well, you'd find different discounts. I imagine that you found some federal and state price lists that would list discounts. Also, there would be discounts to a wholesaler, of course.

Cutter: Then there was beginning to come up a pharmacist, drug store, or somebody not connected with a pharmacy, who would really go out after, for instance, the veterinary business. And he got, I think it was a fifteen per cent additional discount for going out and doing that work.

Morris: This is a salesman of yours?

Cutter: No, no. The druggist himself or his salesman would go out and actively solicit the business from the ranchers. Instead of just sitting in his store and waiting till a rancher came out, he'd get out into the--it wasn't just orders for biologicals that he was getting. He'd be getting other pharmaceutical products and some of them even went to the extent that they'd get out of the drug business entirely and get into harness and curry combs and all that sort of thing.

Morris: All the kinds of things that you needed to take care of stock.

Cutter: Yes.

Morris: Would they be particularly informed on the new products, like the--?

Cutter: Well, they would be much better informed on all veterinary products than would the average pharmacist.

Morris: And their purpose was primarily selling?

Cutter: That's right.

Morris: What would their relationship be to the agricultural agents in a given area?

Cutter: Well, your agricultural agent in that era was not a big factor. He came later, you see.

Morris: I wondered about this. But if the government was pushing their free blackleg vaccine--

Cutter: Well, that was way back now. That's way back before this 1920.

Morris: That's true. And the blackleg situation had resolved itself by then. I've got one more question on pricing, and then maybe we could wind up for today. Your father commented that he was independent in price fixing--

Cutter: Don't ever use that! Price fixing is a very--

Morris: In setting the prices, in setting the price of the products. I beg your pardon.

- Cutter: Much better!!! Price fixing has a connotation of two firms getting together and agreeing that they won't cut the other's price, and that's strictly illegal. Although I'm afraid that there was, in those days, a certain amount of collusion among at least the smaller manufacturers.
- Morris: In a given area?
- Cutter: Yes. Well, of course, I guess that in those days, actually, it wasn't against the law. But I think that there probably was. If price cutting had gotten terrifically bad among two competitors, they'd finally, somehow or other, get together and say: "Well, let's cut this out. It doesn't make sense. We're both losing money on it."
- Morris: Would this be like dividing up a given territory?
- Cutter: No. None of that. How crazy can you be? It's like when the gasoline prices get down so ridiculously low, even to this day. I just wonder if, finally, one gas station man doesn't go over to the other and say: "Let's get some brains in our heads!" [Laughter] Because all of a sudden, they seem to clean up, one way or the other.

Production Costs and Pricing

- Morris: I'll try my question another way. At one point, your father felt that the price of the diphtheria antitoxin was too high, in terms of the need and in terms of the cost of production. So, he instituted a lower schedule of prices than other manufacturers. Would that have produced a great uproar from the other manufacturers?
- Cutter: Well, they would undoubtedly meet the price.
- Morris: And then, about the same time, he raised the price on the anti-strep and smallpox vaccines because his feeling was that Cutter, and other manufacturers, were producing at a loss because the process was more expensive?
- Cutter: Well, you've got two different products. Let's take the anti-toxin first. Perhaps it cost more because he didn't get the horses up, or it was more toxic, or the sales were far less and much of it was returned. You'd send it out to the pharmacist and he wouldn't use it, and when the return came--you see, all those things were dated, and when they reached that return date, the pharmacist sent them back, and either got full credit for them or got another shipment of the same product.

Cutter: And, maybe the price on the strep serum was lower than the other. I don't know at this time, but there'd be a number of different reasons why one antitoxin or serum would be less profitable than another.

Now, let's go to smallpox vaccine. You mentioned that. There was a toughie, because it's really a very expendable product. In other words, it had a market dating of six months, and it had to be kept in refrigeration. So, the returns on it were very high.

This reminds me of something which I imagine would be of historical interest: that is the difference in smallpox vaccine distribution in those earlier years and what came about later. And why it is that Cutter no longer produces smallpox vaccine.

Now, as I told you, smallpox vaccine had a market date of six months. In the original era, the individual physician did the vaccinating, the general practitioner. But as time went on and more cities and counties and states got health officers, the health departments took over the vaccination. And this meant that your principal market became the health departments. And this usually meant that you had to bid on that business.

Let's say that Laboratory A would see that they had a lot of smallpox vaccine which was going to have to be thrown out if they didn't sell it right quick. So, they would cut their bid way down. After all, it was absolutely worthless to them if they didn't sell it.

Morris: Once the date expired.

Cutter: Yes. So they would cut their bid way down, so the poor guy who had a lot which had a nice long date on it, would be left holding it. Well, with half a dozen firms in the vaccine business and your business going more and more through state health departments, more often than not, the lowest bidder was below his cost or anybody else's cost.

Morris: Just to get his investment back?

Cutter: Just to get out of losing all of this vaccine which was going out of date. So, it became a very unprofitable business and we just got out of it.

Morris: I would think that it would make it increasingly hazardous to be vaccinated, wouldn't it, if health departments were getting vaccine which was close to its expiration date?

Cutter: Actually, it was probable that the expiration date, if the product was well held, could have been much longer. We had reported instances--I remember a medical school classmate of mine told how in World War II, smallpox developed somewhere around, and he had to vaccinate his troops with vaccine of ours which had been outdated for around two years--and he said that he just got takes all over the place.

So, in other words, the vaccine doesn't come up to one day less than six months and be perfectly potent, and then, one day after that, be impotent. Well, I think that maybe it's time that I should break.

Morris: That's a good place to stop, I think.

Date of Interview: 17 October 1972

Rabies Vaccine and its Applications

Morris: Last week when we talked, we were on veterinary products. You were going to tell me the story of the Cutter rabies process.

Cutter: Yes. When I was first involved in the preparation of rabies vaccine here at the laboratory, it was probably in the area of 1917. It would either be in my late high school or early college years. And, as often was the case, I was working here at the laboratories during the summer vacations.

That particular year, my job was to grind the rabies vaccine. This was the real, old, original Pasteur process that had been developed by Pasteur in France. The rabbits were injected, and when they came out with rabies, the spinal cord was removed and was suspended by threads over a drying agent. I think it was calcium chloride, but I may be mistaken in that.

It was dried, some for one day, some for two days, some for three days, some for four days, five days, six or seven days. I don't remember just what the end point was, but I think that it was seven days. In any event, the cord which had been dried the most had, presumably, the least chance of toxicity. It was cut into sections and, as I remember, these sections would be approximately three-quarters of an inch long. Then those would be ground in a mortar and suspended. I think that it was suspended in saline. And these were then put in a vial. And those vials were immediately shipped in thermos bottles to the physicians here, mainly on the West Coast.

Morris: Was this only made up when a doctor reported in and said, "I have a rabies patient?"

Cutter: The cords were made ahead of time, but the grinding was only done for that immediate day's shipment. [Laughter] This was very, very unsatisfactory from every standpoint. You can just imagine--if the mails were delayed, why the patient didn't get it, and we'd get telegrams. And the thermos bottles were made of very thin glass, and they would get broken. Part of it was that they were to return the thermos bottles to us, and they wouldn't. Or, if they did, they would pack them so poorly that all of them would come back to us broken. So, it was very unsatisfactory.

With this original Pasteur treatment, it was sent out for twenty-one days. So, you can realize that it was hardly ever that one patient was treated smoothly, that everything came through on the right day and so forth.

Morris: How many patients at a time would you be making the vaccine for?

Cutter: I'm really guessing now. I would judge maybe twenty. That is, I'd be grinding and sending out twenty different batches a day for individual patients.

Then, later--and that was after I was working here at the laboratories either full time or half time. I did practice for two years. I practiced allergy in Oakland half time and worked at the laboratories half time. That was--let's see--probably 1925 and '26. Then, at that time, I read in the Indian Medical Journal--that's the Asiatic Indian Medical Journal--a report from the Kasauli Institute.

Morris: Was this a journal that you regularly received?

Cutter: We took it here, yes. We received it here. We had a pretty good library, even in those days, of the medical periodicals. Fortunately, there were not a tenth as many of them then as there would be now. Remind me later on to tell you about the business journals, too. That is another interesting thing.

And now, I'll get back to the rabies vaccine. An Englishman at the Institute, whose name was Semple, had developed a vaccine which used the brain as well, so it gave a great deal more tissue than just the spinal cord. Also, his was a vaccine which didn't deteriorate. So, therefore, the entire shipment could be sent out in a box containing the fourteen or the twenty-one doses, whichever would be needed.

The Semple vaccine was a ground and what we called a killed virus. And that went over very well. It was a great relief to everybody, and the probability is that it was a more potent vaccine, a better immunizing agent, than was the Pasteur vaccine.

Cutter: Now, there's one little interesting sidelight in that. I'd say about a year or so after we had started using Semple rabies vaccine and had abandoned the Pasteur vaccine, my brother shipped me from Denver a dog that they had there because I had some boys and he thought that this dog was just a wonderful pet. Well, the dog hadn't been here more than three days before it developed dumb rabies. So, I got the parents of all the children in the neighborhood together and told them what had happened.

I told them that, in spite of the fact that there was no history of the dog biting any of the children, I was going to give my children the rabies vaccine and, if any of them would wish their children to have the rabies vaccine, I would furnish it and administer it. So, that was then a fourteen-day treatment. [Laughter] For fourteen days, I was not a very popular gentleman with about fifteen kids in the neighborhood.

Morris: You lined up all the children?

Cutter: They came over every morning and I would give them their shots. Toward the end, some of them would start to have allergic reactions to the shots. Not only the shot that I would give them would hurt and itch, but the shots that I had given them previously would start to itch. [Laughter]

Morris: You said "dumb rabies." Is that a different variety of illness?

Cutter: Well, the dumb rabies--and I forget the other term, but let's you and I just call it the aggressive or ferocious rabies, where the dog just goes crazy and goes around biting anything or anybody. This animal just got sleepy and fell down at the hind end.

At that time, the rabies vaccine for dogs was being made from dog brains. So, I was very familiar with the symptoms in dogs and I immediately recognized it and started in ahead of time. Then it was confirmed later pathologically that that was what it was.

Morris: Was Cutter making the vaccine for dogs at that point?

Cutter: That's right. Yes.

Morris: Was it a general practice to immunize household dogs?

Cutter: Yes. It was becoming a general practice. I don't remember, but I don't think that it was required at that time. But it was becoming more and more of a general practice to immunize dogs.

Morris: When you switched to the Semple vaccine, did you develop your process just from the article in the medical journal?

Cutter: That, yes. And I wrote to the Kasauli Institute. They very kindly answered all of the questions that I asked and detailed the methods of production. And I recall that Dr. McCoy--the then head of the hygienic laboratory, the predecessor of the National Institutes of Health, who, as I told you, made the inspection himself, personally, because he got a trip to California out of it--he was very much interested in the whole thing. He asked for a copy of the letter which, of course, I was glad to give him.

Morris: Were you one of the first laboratories--?

Cutter: We were the first in this country to use the Semple vaccine. Others went to it later. And then, there have been several other changes since then and we have gone out of the rabies vaccine business. So, I haven't followed it.

Morris: Your correspondence with the Kasauli Institute is in the Old Timers Room. The letter is dated 1924.

Cutter: Oh, is it? I didn't remember that.

Morris: It was very interesting and understandable to a layman. Was the information sufficient so that you could duplicate the process here?

Cutter: Well, I remember the letter and remember that it was very helpful. It went into quite a lot of detail, didn't it?

Morris: Yes, it did, with some of his comments about what he'd found worked better under actual experiences. The thought of shipping the vaccine daily in a country as hot as India is incredible.

Cutter: Yes.

Morris: So, this rabies vaccine was under Dr. Wood's direction as veterinary medical director? He'd come in 1914?

Cutter: Yes. Now, I imagine that the dog vaccine was, but the human vaccine was made from rabbits. We had the experience of the Kasauli Institute using rabbits. That's what they used. And also, there was the long history of Pasteur using rabbits, so we didn't change at that time.

Cutter: Later, we did change to sheep for producing the canine rabies. I was so glad of that because I remember that I just hated to see a dog undergoing that treatment. I just hated it! I had a dog myself.

Morris: Yes. So, you had the treatment vaccine being prepared for humans who had been bitten by a dog under the medical director and you yourself were working on that. Then, the veterinary vaccine prepared for immunizing dogs was done under the veterinary medical director?

Cutter: Yes.

Morris: Was the same process used for the two vaccines?

Cutter: Very, very similar, if not the same. My memory fails, but it was a very, very similar process. A rather interesting side-light on this is that within the past year, our Dr. Cabasso, who has been working with rabies virus for quite some time, has developed an immune serum to rabies, which may become a very important product.

[See illustration next page]

In other words, instead of trying to develop an active immunity, or maybe in conjunction with an active immunity, they can have borrowed immunity of the serum.

Morris: Would this be the kind of thing that we now do routinely for smallpox?

Cutter: No. This would be more like what we do for tetanus. We now give a human antitoxin, it's called. It's a human serum, you might say. It's prepared from the plasma of human beings who have been immunized with the tetanus toxoid. So this, then, would be a rather similar thing. It would be a passive immunity.

Morris: Is there a difference in strength in the vaccine that you give to animals?

Cutter: Now, I don't remember what the difference in concentration, if any, would be. I don't remember that.

Morris: If it's the same process and if you're trying to cope with the same disease, why is there the need for separate veterinary and human products?

Cutter: Well, going back again to when I was familiar with it, the very thing that I said is that the human product had been

Oakland Tribune, 26 June 1974

New Vaccine Aids Rabies Treatment

By JAMES HAZELWOOD
Tribune Science Writer

BERKELEY — A new vaccine which represents a milestone in the treatment of rabies—a disease which is endemic, or native, to California—was announced today by Cutter Laboratories Inc.

The vaccine, when it becomes readily available, will eliminate the frantic search for dogs which have bitten children or adults so they can be studied for rabies symptoms before treatment is begun.

It will also eliminate the serious dangers of serum reactions which accompany treatment with present vaccines.

The new vaccine, called Hyperab by the company, is made of human blood serum from volunteers who were immunized against rabies with a vaccine made from the tissues of duck embryo.

This human serum has never before been available in sufficient quantity from rabies-immune people to provide a vaccine.

Dr. Victor J. Cabasso, director of research for Cutter and a rabies researcher 30 years, said the present supply was obtained from volunteer students at the University of California School of Veterinary Medicine at Davis.

Dr. Cabasso noted these students would have sought immunization anyway to protect them against rabies while handling animals.

Although the volunteers willingly participated, Dr. Cabasso said only 8 to 10 per cent of them developed a level of antibodies in their blood serum with a high enough concentration to be used in a vaccine.

The vaccines available now for rabies treatment are made from the serum of horses which have been immunized.

Since they come from a different species, as many as 30 per cent of cases treated with them suffer severe side effect reactions, which some-

times result in death.

This is the principal reason doctors are so reluctant to begin rabies treatment before establishing beyond all doubt that a patient has been exposed.

The treatment itself can cause sickness and death.

But if treatment is not begun in time, rabies almost invariably proves fatal. In recorded medical history, only one patient ever has been known to recover.

The new vaccine will make it possible to begin rabies treatment, without harmful effects, if there is only the slightest suspicion that the disease is present.

David L. Cutter, chairman of the board of Cutter Laboratories Inc., who announced the new vaccine, said an initial supply will be available for emergencies at the company's distribution center in San Lorenzo.

The availability of additional supplies will be announced when the product goes on the market next August.



DR. VICTOR CABASSO
Milestone in treatment

New Vaccine Aids Rabies Treatment

Cutter: made from rabbits. That is, the product from rabbits had been used on humans for years.

But they found, experimenting with dogs, that the dog brain, and later the sheep brain, would do just as well. And there is, of course, a tremendous difference in the size of a dog's brain or a sheep's brain than there is in the size of a rabbit's brain. I imagine that it was just a matter of economics. That was what it was.

By that time, there were others then, later on, producing the rabies vaccine, and I don't just recall what the competitive situation on it was.

Dr. Fred Wood Vanquishes the Anthrax Badlands

Morris: Okay. I've got the difference between the human and the veterinary process a little more sorted out. I'd like to talk a little more about Dr. Wood and his contribution.

Cutter: Well, Doctor Wood came to the laboratories, as you say, in about 1914. He had been over in the Philippine Islands in the government service over there in a laboratory. He had been working with rinderpest along with Dr. William Boynton, who you've also said that you want more information on at a later date.

Now, Dr. Wood, in the early stages--I don't really remember too much about. I know that he wrote all of the veterinary literature, and I know that he was working on anthrax vaccines. I know that he developed a more potent spore vaccine. The anthrax spore had to be given along with the serum, because if they gave it without serum, the animals came down with anthrax.

He developed what later on was called the Number 4 Spore. That Number 4 Spore allowed cattle to be pastured on lands infested with anthrax. Usually these were marshy lands and the feed was lush. So, the cattlemen's mouths watered to get their cattle on this feed, but they knew that if they did, they were just flirting with losing their whole herd with anthrax.

Finally he was able to protect these animals. He worked on the Miller and Lux ranches very largely, and worked on their very bad lands, trying small injections and trying different lots on their very bad pastures. So, this was how the Number 4 Spore came to be developed, and it produced an immunity to anthrax beyond anything which had ever been done before.

Morris: I came across a reference to the "anthrax badlands." Was that a particular part of California?

Cutter: Well, Miller and Lux had gone down in the San Joaquin River area. It was usually marshy lands. And there was an area up in the Klamath area. And they had the same type of badlands down around New Orleans.

Morris: Did Miller and Lux come to you and say can you do anything about this?

Cutter: This I don't remember.

Morris: Did they provide the stock for the testing?

Cutter: I imagine that they did, because it was, of course, a tremendously important economic thing for them to be able to use this beautiful pasture which they couldn't otherwise.

Morris: I would think so. And then, did you begin to ship some of this spore vaccine to New Orleans?

Cutter: Oh, yes. That really made us down in that area down there. That was really the first place that we got out of the west to any extent. It was due to our anthrax vaccines holding so well in the anthrax badlands.

Morris: Did they read about your vaccine, or did you read about their anthrax problem?

Cutter: This I don't remember. I imagine that it was common information that they had a very bad problem down there. And undoubtedly, Dr. Wood would have known about this, you see. He was a graduate of Cornell, which was, at that time, the very finest veterinary school. And undoubtedly, just in their class work, they would have learned, when they were studying anthrax, that there were areas which were such badlands for anthrax that the cattle couldn't be pastured on them.

Morris: This question is probably out of Cutter Laboratories' territory, but at some point, did somebody begin to consider what they could do about the pasture land itself to eliminate the anthrax?

Cutter: No. The anthrax is a spore organism, which means that it goes into hibernation and can live for years and years and years. So, once the land is infested with anthrax spores, it's there, you might say, forever.

Morris: Does it move?

Cutter: No.

Morris: If you drained the marsh, would it go away?

Cutter: Probably not, unless you got rid of the spores in the drainage.

Morris: I have a note that after the Spore Number 4, the next product along the anthrax line was Charbonal.*

Cutter: Yes. That was a modified anthrax vaccine. And, darn it, I forget the modifier! But it was with a chemical which held the anthrax spores and allowed the use of the vaccine without any anthrax serum, which was a great advance, you see.

Morris: Why was that an advance?

Cutter: Well, the serum is very costly.

Morris: Was this the point at which the Alhydroxide* process was introduced?

Cutter: No. That came under blackleg, and I think that we'd better make that a separate topic, unless you're through with anthrax.

Morris: I think that I'm about through with anthrax, unless there is something about what anthrax vaccines meant in terms of sales?

Cutter: Well, they were quite important to us. The veterinary line, in those days, was much more important to us than it is now.

Morris: And how long did that relationship continue?

Cutter: Well, that relationship continued certainly until we brought out the intravenous solutions line in 1933, and probably for some while after that. From that point on, the human products became more and more important to us. It wasn't because we lost business in the veterinary line. It was because we gained business in the human line.

So, percentagewise, in our total sales, the veterinary line decreased, although in dollar volume, it increased all the way along.

Cooperative Research with University Colleagues

Morris: That's interesting. Other products that Dr. Wood worked on were the Red Water vaccine--

Cutter: That's right. That's one that he certainly worked on. And that was again a bad one in certain areas, rather similar to

Cutter: the anthrax lands. I know that there was a very bad area around Minden, Nevada, and also, again, up in the Klamath area.

Now whether or not he worked on that with Dr. Boynton, who was then at the University of California, I don't remember.

Morris: The names that were mentioned on the Red Water were Dr. Vawter and Dr. Records.

Cutter: Oh! They're in Nevada. Yes, they were in the veterinary department at the University of Nevada. They were anxious to get something to take care of the Red Water that they were having in the Carson Valley, in Minden, and around through there.

Morris: Would this be a problem that came from the drinking water?

Cutter: No. It was a problem that got its name from the urine of the cattle, which would be colored with blood. It was a general infection, but one of the things that they first would notice would be that the urine would be bloody. So, they called it Red water.

Morris: Very descriptive! So, would he go up to Nevada and consult with them?

Cutter: Yes. He worked with Records and Vawter and they would come down here. I think it was they, really, who worked out the original thing, but, of course, they were in no position to make it in quantity. So, they cooperated.

My memory is coming back on that. It was they, yes, who did cooperate with Dr. Wood. And it was their cooperation that was responsible for our going into it.

Morris: In other words, they had a laboratory experiment that they thought would work, and then they would come to Dr. Wood and say, can you make this in quantity?

Cutter: Yes. Now, I'll tell you what. On these veterinary products, you're going to get a much better story from my brother Ted. He has a better memory than I do anyway. But he was more concerned with the veterinary field, so when you come to hog cholera, I think that I'm going to just let him give it to you. You'll be surprised at the dates and all that he will be able to give you right on the tip of his tongue.

And also, if we get into the penicillin and into the plasma and fractions, he'll do better than I will.

Morris: At some point, did he take over production?

Cutter: No. He was concerned more in the development, though not directly. But he was just interested in the veterinary line. He often went out with the salesmen and with the sales manager and with Dr. Wood, calling on larger stockmen and larger druggists who sold the vaccines and all.

Morris: It sounds as if Dr. Wood was a very sociable man, considering his contacts with the doctors in Nevada and all.

Cutter: No. When you say "sociable," I think of a guy who is talkative and all. Let me just give you a little anecdote. We've mentioned Dr. Boynton and Dr. Records and Dr. Vawter and Dr. Wood. And four more taciturn men you would never find in your life!

They very much enjoyed each other's company. I don't remember Records and Vawter, but I know that Boynton and Wood both smoked pipes. And they would sit for minutes, not saying a word. And then one might say a word and the other would say, "um hmm," or "I don't think so." And their conversation--we used to laugh about it. They just enjoyed each other. All four of these men had a great respect for the others. But, as I say, they were the most taciturn men you'd ever find.

We'd repeat the old story. Of course, it didn't happen, but it was often told on Dr. Wood that he would never commit himself until he had all of the facts. And there is the old story about his passing this band of sheep, and whoever was with him saying, "Well, it looks like those sheep have just been sheared." And Dr. Wood, hesitating for a minute or so, and then finally saying, "Well, on this side, anyway." [Laughter] It's an old, old story, really not true about Dr. Wood, but it fit.

Morris: [Laughter] It illustrates the point! So these fine researchers worked well together, although they were not gregarious by nature. Had Dr. Wood known Dr. Boynton?

Cutter: Boynton had been in the Philippines with him.

Morris: What I was interested in particularly is that Dr. Boynton was apparently connected with the university and Dr. Wood was here at the laboratories. Did they work together on the original research?

Cutter: I'm not sure what you mean by "original research."

Morris: Well, I find references to field tests and--

Cutter: They would work very closely together. Dr. Wood would go up to the university and Dr. Boynton would come down here. Later on, in the hog cholera work, we actually had an office here for Dr. Boynton in the hog cholera laboratories. And that's where they had those tremendous conversations. [Laughter]

Morris: Was Dr. Boynton attached to the Hooper Foundation?

Cutter: No. That was Dr. Karl Meyer. He came in through the plague vaccine. And again, Ted will be able to tell you more on that. That is a very interesting chapter in the history because we were the only ones allowed to produce plague vaccine because we were in an area endemic and they didn't want to have plague started by any accident or anything in the Midwest or in the East where the other laboratories were.

Morris: I can believe that! Is rinderpest a form of plague?

Cutter: Well, no. It was mainly in the Philippines and other Asiatic countries, and I don't know just what the spread is. But it was, in the Philippines, a disease of the buffalo, which is an important animal there, you see.

Morris: I came across it referred to as "cattle plague." How does that differ from the plague we were coping with here?

Cutter: Well, that's bubonic plague. It's an entirely different thing. Many different diseases have been called plague throughout history and the one that is generally thought of as plague is bubonic plague.

Morris: And that we had in California?

Cutter: That we had in California. And our rodents are still infected with it.

Morris: Dr. Boynton was in what department at Cal?

Cutter: He was in the veterinary department at the University of California at Berkeley. They worked in little temporary buildings which were about forty years old at that time.

Morris: They may still be up there! [Laughter]

Cutter: I don't think so. I think that they were finally wrecked at the time that the stadium was built, or shortly thereafter. They were in Strawberry Canyon.

Also, we were in the poultry business for quite some time. You might ask Ted about that, about the poultry vaccines and chicken pox.

Morris: Is the chicken pox that people get related to--?

Cutter: It is different entirely.

- Morris: Would you or your brother Ted be the one to ask about how Dr. Wood arranged for Cutter Laboratories to be the people who went into commercial production of the vaccines that Dr. Boynton had developed?
- Cutter: Ted would be the one. He'll give you a better story. I can give you a story on it, but he can do you much better.
- Morris: Could I have both? Your perception may give us different things, though his may be more detailed.
- Cutter: All right. But, furthermore, if there is any discrepancy, be sure and take Ted's, because he has a better memory than I do and he was more familiar with it than I. I, at that time, had to get into more general things, and Ted was able to get into this veterinary field, which interested him tremendously.
- Morris: What was his own training?
- Cutter: He was at the University of California in Letters and Science, no real scientific training at all.

Family Relationships and Recollections

- Morris: How did you and your brothers sort these matters out, about who was going to do what?
- Cutter: Well, we worked them out pretty well by ourselves. Different things interested us, so we didn't have too much conflict about that. Oh, occasionally we'd have huge differences of opinion. But, fortunately, there were three of us, and if two of us got into a real strong difference of opinion, we'd call the other one in and let him be the umpire on it. But that happened very, very rarely.
- Morris: You all were very objective and able to resolve things.
- Cutter: Well, it's very rarely, you know, that you have three brothers working very amicably together in the conduct of a business, and we did.
- Morris: Yes. Do you have any private guides to getting along with brothers?
- Cutter: Well, when I went back to Yale, that was one thing Yale did for me. Before that, Ted and Fred and I--boy! we fought! I was four years older and they were much closer in age. They were

Cutter: two years apart. And, as boys, I'd ditch them because if I didn't, they'd come home and tell all of my misdeeds at the dinner table, and then I'd get a licking for it.

So I realized, when I was back at New Haven--whenever you get a little distance, it's helpful--that the most important thing for me, if we were going to go on with this business, the three of us--and all of us were going in that direction--was to get along with my two brothers. So, I made that an active project, to get along.

Sometimes, we'd be closeted in a room, and folks would think that the laboratories were about to end because the Cutter brothers were having a big squabble. But we'd come out of it and be eating our lunches out of bags together and out playing volley ball during the lunch hour, or going off hunting.

We always went off on hunting trips together and on fishing trips. So, yes, we had violent differences of opinions at times, but we were always able to settle them.

Morris: This brings up a question that I wanted to ask about your father. How old were you boys when he started taking you off on your trips to the Sierras?

Cutter: Oh, I was six years old when I caught my first trout. And that was when we were staying in a cabin near a lumber yard, Peterson's Mill, out of Fresno. I remember Dad and I taking the horses. And he was always one who never watched the clock very much. He fished too late, so we had to let the horses guide us home. But, all of a sudden, we realized that what they were guiding us to was down to the barn in the San Joaquin Valley.

Morris: Back home!

Cutter: Yes. They were going back to their home instead of back to the camp, you see. [Laughter] That was out of General Grant Park. But anyway, from there on in, he would take one or the other of us. And I remember then later, when I was around twelve years old, we went up to Crocker Sierra Resort, which was on the Big Oak Flat Road that is no longer in existence, but it was at that time a well-known summer place. And from there, we took horses and went over into the Hetch Hetchy. I think that I've told you about that.** And then later on, many times, we went different places.

** In April, 1972, Dr. Cutter recorded his recollections of the nature of camping and hiking in the Sierras before it became a major form of recreation. Tape is deposited in The Bancroft Library, Sierra Nevada, 1909-1913.



The Cutter brothers. Left to right: Fred A. Cutter, Edward A. Cutter, Robert K. Cutter. 1952

Morris: Did your father ever call off one of these trips or not plan one one year when the company finances were particularly tight?

Cutter: No. The trips we took were not expensive trips.

Morris: Did he not mind taking several weeks off?

Cutter: No. Dad was not a close personal manager at all. I mean, he preferred to let the others go ahead and he'd rather manage it from afar. One of the men here--and I'm not going to name him--was quite talkative, so Dad got the habit of coming down on Sundays to get into the books and records so that he himself could find out just what was going on without anybody trying to explain it over his shoulder.

Morris: Yes. There are times when that is a very good idea! Could we pick up on your recollection of how Dr. Wood got the laboratory the permission to be the commercial producer of Dr. Boynton's hog cholera vaccine?

Cutter: Well, he and Fred were great friends. He and Dr. Boynton were great friends--Bill Boynton. And it was just a natural thing. I mean, Dr. Boynton had the laboratories up there and lots of animals, but he didn't have the large-scale places that we did, nor the finances, to do the testing necessary, nor the entrée to do the field testing out with the hog raisers. So, it was just natural.

Morris: Was it the university that licensed it for commercial production?

Cutter: No. Actually, the university had foresworn any interest in patents, and Dr. Boynton took out the patent and we were licensed by Dr. Boynton to make the BTV,* which stood for Boynton's Tissue Vaccine.

Morris: I have a purely local question. Was Dr. Bill Boynton a part of the Boynton clan that built the famous Temple of the Wings up on the hill?

Cutter: Yes, but not directly. And he was not a temple dancer.

Morris: The temple family was very colorful.

Cutter: Very! You see, Bill lived up very close to the temple and so did we. We lived on La Vereda Road from 1930 to 1938, and the temple was just above us. And I remember one of the Boynton girls coming down because she wanted to meet a beau. Her folks took a dim view of the beau, so she'd come down and talk with me while she was waiting for the beau. [Laughter]

Morris: How did the Temple of the Wings family feel about having a distinguished scientist in the family?

Cutter: I just don't know. I had no contact other than with this one young girl.

Morris: Coming down this morning, I came down Arch Street to see if your first Berkeley home was still there.

Cutter: Oh? Yes, there is a little house there, but it's entirely different.

Morris: It's not your little house?

Cutter: No. All that area was burned in 1923.

Morris: I see. It did burn that far up?

Cutter: Oh, yes. All of that whole area was burned from about--oh, Otis Marston was able to save the big old Newcomb House, where the synagogue is now, and that's what saved that area. He had a number of houses there, and I guess that he did yeoman duty in saving those. He saved most of his houses.

Morris: Was he a builder?

Cutter: No. His father was a sea captain and he just built these houses around and rented them.

Morris: How did the laboratories fare in the fire?

Cutter: Well, you see, it didn't come below Shattuck Avenue. The fire started over the hill and came down.

Morris: While we're up there on the hill, there is a note in your handwriting about the company trademark, saying that you remembered many trademarks being proposed and long conferences about it at the house on Arch Street. And I wondered if you sat in on those?

Cutter: No, I wouldn't have. You see, we moved from the house on Arch Street in 1909, I believe it was. So, I would be only eleven years old. That trademark at that time would have been the triangular trademark with the syringe across it.

Morris: That's right. Your note also said that this was designed by your Uncle Winnie.

Cutter: That's my dad's younger brother.

Morris: When did he join the firm?

Cutter: Well, he really was never with the firm. He was a very lovable guy. He could do things real well. He put out an oil journal,

Cutter: probably the best oil journal that was ever put out, but only two issues of it. [Laughter] And he was the champion state pole vaulter at that time. I think it was around eleven feet was the state record. He was into this and that, but never anything that was very much of a success financially. He was a very, very grand guy, but he just wasn't a businessman.

Morris: Had he come from Canada because your father was here?

Cutter: Well, by that time, you see, Father and his sister Norah were out here. Now, I don't know, but I presume that was it. He was quite a bit younger than my Aunt Norah, who was younger than my father. I really don't know their relative ages, but I know that he was quite a bit younger.

Morris: Would he have been the author of the company newspaper put out for a time in 1914? It was called The Monthly Outrage of the Village of Cutter.

Cutter: The Monthly Outrage. I remember that, yes. No, I think that Mr. Twining was pretty largely in the middle of that. Uncle Winnie may have worked at some jobs at the laboratories, but he was never associated with them.

Morris: In other words, he didn't stay on and play a major role?

Cutter: No, or even a minor role, really, I think. Now, his sister, Aunt Norah! [Laughter] Believe me, she did! She was the champion of the downtrodden and the withholder of the checks when the money was scarce, particularly for salaries and for the amounts due to our suppliers. It was she who held the check-book! [Laughter] But no, Uncle Winnie was never associated with it, never.

Key Management Personalities

Morris: Would Aunt Norah have had a say in the larger financial policies of the company?

Cutter: She would have had some say, but Mr. Rahill and Mr. Twining and my father would be the ones who would largely make and execute financial policy, particularly Mr. Rahill and my father.

Morris: When did Mr. Rahill--?

Cutter: I was hoping you'd tell me. I think it was around 1912. And he came from The Fresno Republican.

Morris: A newspaperman?

Cutter: I don't know what area. I wouldn't wonder but what it was financial or somewhere along that line. The paper later became The Fresno Bee, when the McClatchys took it over. I'm not sure, but I judge he was in the financial end because I know there was a book on accounting written by Mr. Rahill that he was very proud of.

Morris: I should think so. Had he written that before he came to you?

Cutter: Oh, yes.

Morris: Your father must have been very happy to have him join the firm.

Cutter: Yes. Right. And he was very important in the firm until his death in 1930.

Morris: He's on the first letterhead as secretary. What did he actually do? What were his responsibilities?

Cutter: Well, actually, he acted as office manager and sales manager and, you might say, pretty much general manager. He was here every day six days a week and he was pretty much general manager.

Morris: So, when he came, your father would have kind of split things up between Mr. Twining and Mr. Rahill?

Cutter: That's right. Yes. And Dad took really no--now somewhere along the line in the early days, when we were primarily in the veterinary field, Dad put the laboratories over with little one-inch ads in the country magazines. I do hope you find some of those.

Morris: Would Mr. Rahill have helped? If he had worked for The Fresno Republican, he would have had contact with Valley towns and their newspapers?

Cutter: Now I don't know whether Mr. Rahill ever did anything in advertising. Then after that, it was Dwight Wood who came along and handled the advertising, and that would be from the period of around, I'd think, 1915 through 1925, and then for a time, I handled it, and then Ted handled it, and then Fred handled it.

Morris: That's interesting. Were you all taking turns so that everybody would get experience at it?

Cutter: Well, you see, I'd had this training in advertising in high school and college.

Morris: Was Mr. Dwight Wood Dr. Fred Wood's brother?

Cutter: Right. Actually, let's see. Dwight Wood's and Fred Wood's mother and Dad's father were sister and brother. So that's full cousins, isn't it?

Morris: I think so. So, the Woods would also have come from Canada?

Cutter: I think they lived in San Diego, because I know Dwight Wood was out here, probably about 1902 or '03, because he stayed with us down at Fresno for awhile. I remember him trying to teach me to play mumbledy-peg and I didn't do it very well. [Laughter] He was just there for a visit at our house.

Morris: Mr. Rahill you mentioned earlier as having gone on a trip to Australia. And I wondered if that was a selling trip?

Cutter: Well, it was double. [Laughter] It was a double thing. Dad felt he was working too hard and maybe trying to cover too many bases without delegating enough to the younger fellows. And if you remember that letter that Dad wrote, why he speaks of, "From here on in, you're going to have to do without Mr. Rahill's finger" or something like that. [Laughter]

I know that Dad felt that Mr. Rahill tried to do too much himself and didn't delegate sufficiently, and I know that's a good part of what that trip was--getting away so that he had to learn that the younger men could do the work if they had to. But if he was looking over their shoulders at all time, they would never learn and never take the responsibility.

Morris: That's a good point. How many salesmen were there at that point?

Cutter: Oh, goodness! There might have been--I would say that it would be somewhere between five and twelve.

Morris: And were they all based here in Berkeley and then went out on their own territories?

Cutter: Well, they wouldn't be based in Berkeley, but they would report to Berkeley.

Morris: This brings us to these notes of your father's on cost and keeping control of the costs of production. The point that

Morris: interested me was that no change was worth making unless it immediately showed an effect on profits, in his words.

Cutter: I suppose that was during the time that Aunt Norah was having to withhold salary checks and so forth. Things were really tight.

Morris: These were notes that your father made in 1919 on his little pocket memo.

Cutter: Yes. That was a tight era there because they had overexpanded in the anthrax and hog cholera buildings. I think it was around 1918 for the anthrax building, and I'm not sure about hog cholera.

Morris: The plans were made in 1916 and it took some period of time to get them built. Isn't 1916 when your father sold part of the land that he'd originally bought?

Cutter: No. He sold a building over there, a small piece of property and a building. It had originally been a paper box factory. It was not being used at all. And he had two other tracts. There's an interesting anecdote. This was the Hardwick Tract and that was the Clute Tract, to the north, up to Dwight Way. Now, Clute was a road construction man and he constructed roads across this property which were not at all necessary. [Laughter]

Morris: Just to keep himself in practice?

Cutter: Well, I think this was a part of an estate, and just what it all was--I know my Dad laughed about it because he said it was a nefarious deal somewhere along the line. [Laughter]

Morris: The quantity of roads! Had your aunt felt that your father bought too much land?

Cutter: I don't know about that. I wouldn't wonder but what he--Dad liked land! He wanted to have plenty of land.

Morris: Did he feel that it would go up in value?

Cutter: Yes. And he hoped that some day the laboratories might grow and need it. And his hope is coming true more and more as we go along and put up additional buildings on it.

Early Cost Accounting

Morris: I should say so. Would the fact that it was a tight era financially explain how Mr. Hopkinson arrived on the scene? He was making a cost study.

Cutter: I wouldn't be surprised but what that was. He was an English accountant and it was he who put in the Hollerith punch card machine, which later became IBM. We were one of the very earliest firms to have that--the punch cards and the tabulating machines, you know. And certainly one of the very earliest of our size!

Morris: The key punch machine in the Old Timers Room has a date of 1921 on it.

Cutter: Yes. That would be about right, I would think.

Morris: Did it take two years for Mr. Hopkinson to work out the new system?

Cutter: I wouldn't be surprised but what it did, because I know that he was working on it over quite a period of time.

Morris: What did it consist of?

Cutter: Well, it was mainly, at that time, a tabulation of our sales by product and by size of package, dollar volume and the number of packages.

Morris: At that point, did he also have anything on the cost of production in relation to the--?

Cutter: I don't think that we ever had a decent cost system. We used to have to wait pretty much till the end of the year before we found out whether we'd made a profit or taken a loss. I know as I was coming up and getting more and more into the business, I didn't know much about it, but I felt the need of a budget.

So, fortunately, I had been working on that at the time Mr. Rahill was taken sick. I remember Dad saying, "Well, gosh! I've been trying to get a budget into that place for the last fifteen years." But, of course, the budget I established--by that time, it was into the Depression--and the budget I established was extremely scientific. It simply meant that we didn't spend a dollar until we had it in the till. And it was very effective. [Laughter] That's a fine budget, I'll tell you!

Apr 1928

EARNINGS FROM DISCOUNTS, 1928, POSSIBLY PREPARED BY COST ACCOUNTANT HOPKINSON WITH COMMENTS BY E.A. CUTTER, SR.

The National Association of Credit Men has compiled a table showing what may be earned by various discounts:

	Per Annum
1/2% 10 days--net 30 days =	9%
1% 10 days--net 30 days =	18%
1 1/2% 10 days--net 30 days =	27%
2% 30 days--net 4 mos. =	8%
2% 10 days--net 60 days =	14%
2% 30 days--net 60 days =	24%
2% 10 days--net 30 days =	36%
3% 10 days--net 4 mos. =	10%
3% 30 days--net 60 days =	36%
3% 10 days--net 30 days =	54%

Perhaps the most usual discount offered is 2% for 10 days or 30 days net. The man who takes advantage of this discount earns 36% annually on his money.

[Wording of note on page 112a written by E. A. Cutter, Sr.]

Very true, very true, and has been for over 40 years to my certain knowledge. But you cannot be an "in and outer", or discount with cash that should go to others. Besides, establishing a reputation for discounting embarrasses when you have to take time. It busted Dollar Watch Ingersoll.

*Discounting embarrasses when you have to take
It busted Dollar Watch Ingersoll.*

FROM
EAC

Cutter: But it was lucky that we did that because each year we hoped that we'd sell more than we actually did. I remember Mr. Twining and I sitting up in that little office right at the corner of that building over there and talking things over. And just if we could only reach thirty thousand dollars a month, we'd be on Easy Street. We'd have no more financial worries or anything else. Well, of course, we reached thirty thousand dollars a month and way more, but the expenses always came along and kept pace with it.
[Laughter]

Morris: In the late Twenties, when you were coming into the firm, no records were kept on an ongoing basis of how much you were spending on production supplies?

Cutter: Oh, yes, but there wasn't a budget. There was no advance budgeting and nothing that said you could only spend so much for this and so much for that. There was no budgeting at all. They got what they thought they needed, and it was only at the end of the year that they'd find out whether they'd bought too much or not.

We didn't have monthly statements. As I recall, those didn't come till later. We had to take inventories to know where we stood.

Morris: Did you take inventory twice a year?

Cutter: I think it was only once a year, but it may have been twice.

Morris: So, for instance, if Dr. Wood was running out of the cord to make rabies vaccine, he would go to Aunt Norah and say, "I've got to get some more supplies?"

Cutter: Well, he'd probably go and buy them and then tell Aunt Norah later. [Laughter] That was part of the trouble, you see! It wasn't very scientific. Budgets weren't very common in those days.

Morris: Well, it was about 1925 when the State of California finally decided they should have a complete budget with all expenses and costs and that the income and the outgo should balance, at least on paper. So, you were right in step with the times. But I'm interested in how the production end would figure out how much of the raw materials they needed to buy.

Cutter: Well, that was pretty much, I think, Mr. Twining's judgment.

Morris: Did he have a rule of thumb about how much he expected to sell?

Cutter: Yes. He would get together with some of the--mainly folks in production rather than sales, and judge on the matter of past

Cutter: experience. That was really what it was.

Morris: He consulted with the production people rather than the sales staff.

Cutter: Yes. You see, the sales staff didn't have any budget for what they were going to sell.

Morris: Were they a confident, exuberant crew who felt that they could sell lots?

Cutter: Oh, sales people are always confident. If they weren't, why they wouldn't be good sales people. Always overconfident, I should say. They've got to be optimists, just as the accountants have got to be pessimists.

Morris: Did Mr. Hopkinson stay on?

Cutter: He was just a consultant.

Morris: Was this the first time your father had brought in an outside consultant?

Cutter: As far as I remember, it was. Later on, after I took over, we had consultants not infrequently; some good, some bad.

Morris: When we get on to another ten years, I'd like to hear about that George S. May study, in 1938.

Cutter: [Laughter] That was a dandy! Did you find some stuff on that one?

Morris: The whole thing is in two massive binders with a report that Mr. Henrikson sent in--

Cutter: We called him "The Pulse."



4. ARRIVING AT MATURITY: 1926-1940

The *Microscope*, September 22, 1944

ONCE UPON A TIME

By CHARLES M. TWINING



The accompanying picture of Mr. Cutter, Sr., and the three Cutter boys on a fishing expedition gives me an opportunity to say many things about Mr. Cutter and a little about the boys.

In the picture you will see Mr. Cutter on the left then Ted, Fred and Bob. You probably won't note, unless you look closely, Bob's red underwear hanging on the tree in the background while Bob in person stands with his lower extremities enrobed in a gunnysack. What occurred was that the makings of a future M.D. fell in the river which was too wet. We think the fishing rod and basket were probably simply furniture for the picture. Fred hangs onto two fish which, from our memory, is the greatest catch he has ever made.

Mr. Cutter came to California in 1888, going to work in a drug store at Traver, a town about 25 miles south of Fresno. Traver was quite an important town at that time but slipped badly when the railroad, which later became the Santa Fe, was built up the east side of the valley. Mr. Cutter then went to Dinuba on the new road and worked in a drug store at that point. In 1892 he bought a store at San Jacinto, in the southern part of the state. Mrs. Cutter and he were married in 1897 and in the same year he opened the drug store in Fresno. This store we knew as Cutter

Prescription Pharmacy and it was one of the nicest stores in the state—a real drug store. In this store the Laboratory was born.

That the Laboratory got through the early years safely was very largely due to Mr. Cutter's good judgment and persistence. He had an abiding faith in the future of the Laboratory and none of the difficulties and disappointments ever affected his faith. It was his encouragement that kept his associates sufficiently encouraged to stay with the ship. The steady growth of the institution is a great tribute to his forward-looking policies. This is particularly so in the land holdings of the Laboratory which are quite sufficient to meet all of our requirements for a long time. At a time when the rest of us were quite discouraged about the future it was Mr. Cutter who, believing implicitly in the future, obtained the land holdings of the company which have been used to excellent advantage since their acquisition.

That he should have died about the time the Laboratory was showing the result of his tenacity of purpose and good judgment is one thing that we old-timers regret more than any other thing. His good advice and encouragement are memories that inspire us to this day.

Dr. Cutter's Preparation for the Presidency

Morris: Now this was the period in which you said you were practicing part-time in Oakland. Was this to get the feel of being a practicing physician?

Cutter: Yes. I had the urge to be, and I wasn't even sure then but that I wanted to practice full time.

Morris: What decided you?

Cutter: Well, I think I just enjoyed the business more.

Morris: You said while we were talking about your studies at Yale that you'd always thought of yourself as coming into the business. And from that perspective, how did you view your medical training?

Cutter: Well, I just took my medical training as medical training. In other words, I wasn't trying to relate it to the laboratories. Although, of course, I was particularly interested in those things which dealt with therapeutics. But I didn't try to go into that, except in the allergy end where I took more allergy. I took all the allergy I could get, and that was because of my mother. I wanted to be able to help her.

Morris: You were keeping your options open, as they say now, so that you could go either way?

Cutter: That's right.

Morris: But from the laboratory's point of view, it would be fine to have a physician.

Cutter: Well, at that time they had a physician, you see. Dr. Harry Foster was here, had been since before 1920. He was then the medical director and for some time after I came, I was listed as assistant medical director because I was more in the medical production field than I was in finance or selling.

Although, talking about selling, as soon as I got the pollen extracts out, I took all of that over. I did all of the correspondence of that or trained others to do routine correspondence and they only came to me about certain things that were out of the ordinary. And I also wrote the advertisements. That was during the time I was writing advertisements. And I wrote the literature.



EVOLUTION OF ADVERTISING, 1920s THROUGH 1960s. FOR MUCH OF THIS TIME, THE COMPANY MAINTAINED ITS OWN ADVERTISING PRODUCTION DEPARTMENT.

The advertisements in this file are some of those used during the period in the 1920's when I was "Advertising Manager?" as well as covering a couple of dozen other functions.

If I do say so myself with my usual modesty, they are damned good advertisements. Sure, the type face is now out of date and the pictures are inadequate by today's standards, but they are advertisements which would still sell products just as they did in the 20's.

Notice the use of coupons offering booklets and/or actual products.

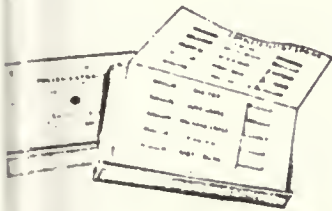
Robert K. Cutter, Sr.

July 24, 1959.

ADVERTISING DEPARTMENT

13

Cutter Pollen Extracts



Free Regional Test Set

Applied and interpreted without previous experience. Our allergic department will help you.

1927 Features

Fresh (1926 hold over has been discarded.)

Improved Treatment Set

No Dilution necessary. Treatment is ready to use.

High Maximum Dose attainable.

Generous Excess for continuing treatment when necessary.

Send for Free Test Set,
Booklet, and Geographical
Pollen Chart



Simplified Treatment Set

Ready and ready to use. Allows a high maximum dose.

Need more hours in your day, doctor?

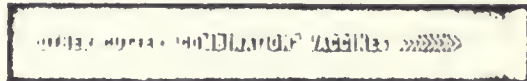
CUTTER Triple Combined Vaccine

diphtheria - tetanus - pertussis

AN IDEAL IMMUNIZING COMBINATION OF
SPECIAL USEFULNESS TO TODAY'S BUSY PHYSICIAN

These days when added demands are being made on the physicians left in private practice, a reduction in the number of calls necessary to accomplish an immunizing program should appeal.

However, of first importance still, is the effectiveness of the antigen—and it is for its effectiveness that Cutter Triple Combined Vaccine is recommended to you. This vaccine is composed of Phase I Super Concentrate Pertussis Vaccine and a highly refined combination of fluid tetanus and diphtheria toxoid produced by a method developed by the Cutter Research Staff. Laboratory and clinical work indicate that these antigens produce a greater immunity against each constituent when used in combination than when given alone.



The Cutter Laboratory

Established 1899
Berkeley, California
U. S. Government License No. 3

Coupon
The Cutter Laboratory
Berkeley, Calif. (for mailing appeal)
Please send Test Set for my Region
Dr. _____
Add. _____

Cutter: You may come across some booklets with "Cutter" up in the corner in a very fancy way, which I designed and was very proud of at the time.

Morris: Everybody took a turn at designing a trademark!

Cutter: Well, this wasn't a trademark. This was just on some of the booklets. You'll see on the front of them there's a little design around and up at each corner is the word "Cutter," making the corner of it.

Morris: What kinds of correspondence would you personally answer on the pollens?

Cutter: Oh, any and all correspondence. Usually, we put out a test set which the doctor would put on the patient. Then he would send it to us and ask us to use our judgment to make a prescription up to suit that patient's needs.

Morris: You were making individual--?

Cutter: Individual sets. We did have some we called spring mix and fall mix, but we did a very substantial business in special prescriptions. Sometimes the doctor would send us the test and say, "I would like it made of such and such," but far, far more often he would send it in and say, "Please make up the prescription which you deem best for this patient."

Morris: So that, in effect, you were a consultant specialist.

Cutter: Well, it was a funny darn thing. That was something that kind of developed. Now I'd have men call me up. I remember one call was an elderly doctor here. We had a neighbor girl, somewhat older than I was though, whose name was Mabel. We'd sent this doctor the hay fever extract and three bottles, and he should have given the smallest amount he could get in the syringe of the highest dilution, which would be one in ten thousand, and then go carefully up, because there was a danger of allergic reactions, you know, in this hay fever extract.

He got me on the phone and he said, "Doctor, I just gave Mabel all of the contents of bottle number three and she's lying on the floor unconscious. What do I do now?" [Laughter] I wouldn't get many of that nature, but I got all other things: "The patient's having reactions" or "The patient is not getting results. Should I increase the dosage?" or "Should I decrease the dosage?" or "What interval between doses should I use?" I'd get a lot of telephone things on that.

- Cutter: And also, too, about the rabies. They'd call on me about the rabies: "The dog is so-and-so and so-and-so. Would you recommend that I give the rabies injection?" Quite a bit of consultation in that way, of treating a child with diphtheria who'd been such-and-such in the fever and the pulse and the respiration were such and such: "Would you recommend that I give her more, or do you think I've given enough?" That type of thing, quite a bit of that.
- Morris: These are specific medical questions that a salesman would not be equipped to comment on at all.
- Cutter: No. And some of the physicians around here really kind of got to relying on me to hold their hands whenever they came up against a thing. [Laughter] I'd say, "Damn you! You know I'm not practicing. Why do you ask me that question?" And I remember one who said, "Well, damn you! I can get common sense out of you. And some of these guys that are practicing I can't get any common sense out of." [Laughter]
- Morris: With the pollen extracts, which were new on the market here in California, did you ever hold seminars or anything like that for the medical association?
- Cutter: No. No. Never did.
- Morris: It was purely on an individual--?
- Cutter: We advertised in the medical journals and direct mail advertising. That was it.
- Morris: Were there conventions at that point?
- Cutter: There were. Yes. The AMA had conventions and we had booths at the AMA conventions.
- Morris: But not, for instance, on this pollen work which you had done as original work yourself.
- Cutter: Oh, yes. There would be a booth thing. I usually took in the scientific papers that were being read and went around and viewed all the commercial exhibits. But I didn't stay at the booth because I felt to do so would--I wasn't afraid of lowering my dignity, but I felt that that would make me commercial, if you get what I'm saying.
- Morris: Yes. I do.

- Cutter: So, I would be available. I'd tell the boys, "Well, if you get anybody who's got any problem, why I'll be back here at such-and-such a time." And often they would have a couple of men there who had some specific problems that they wanted to ask about if the salesmen couldn't handle them.
- Morris: Did you or Dr. Foster ever present papers yourselves on the pollens and other matters?
- Cutter: Yes. We did.
- Morris: So, the papers would be the information that would work into some of the pamphlets, into some of the literature on the new products?
- Cutter: Yes. And, you see, we wrote the literature for the new products. Actually, the literature was pretty badly out of date when I first came in, and I made that one of my early projects to do what I could to get the literature up to date. I used to go over to Lane Library a lot and do a lot of library research on our various products, and I'd do a good deal of the pen and ink stuff on writing the literature right there at the Lane Library.**
- Morris: This would be the survey of the literature kind of data?
- Cutter: Yes.
- Morris: What researchers had done what and what resulted?
- Cutter: Yes.
- Morris: That must be quite fascinating. From those searches, did ideas come which you later suggested that the laboratory try out?
- Cutter: I'm sure they must have, but I don't remember specifically any particular one. I do remember that the design for the original Saftiflask,* that I just drew out in pencil on a pad of paper that I had, while I was in my automobile parked near the Lane Library.

I was away from the laboratory and away from everything, and I just sat there thinking. And that's when we came out first with my precious design of the pyramid superimposed on a cylinder to give a larger bottom for the bottle than top, so that it would fit upside down in a ring stand, the metal ring stands which were in hospitals and in laboratories at

** At that time Stanford Medical School and its library were located in San Francisco.

Cutter: that time.

Morris: So that you could make use of components that were easily available?

Cutter: So that in injecting from the bottle, they could use their own ring stands. And originally, we didn't have a bail with each bottle.

Morris: What's a bail?

Cutter: It's like a handle on a bucket.

Morris: When you joined the firm full time, how many employees were there all together?

Cutter: I don't remember.

Morris: Well, you had about five or six, you thought, in the sales force when Mr. Rahill was sales manager.

Cutter: There'd be quite a few then because, you see, everything was hand work. And I do know that the way of doing things in the packaging room was so terribly tedious. I think I've told you about the machines we developed to improve that.

Morris: It was the tediousness for the employees as well as the slowness?

Cutter: Oh, yes. Well, see, they had to have a lot of employees to do it, you know. Just think of each time you wanted to put a label on your bottle, or, worse than that, put a label around a carton-- which were big, long labels, you see, because many of the cartons were oblong, and that label was a strip label which went clear around. It would measure well over a foot, maybe eighteen inches, in length. And that would have to be put out individually on this paste board on which it would be pasted, and then individually lifted, and individually put around very carefully on this box. And if they didn't do it right, why it went around crooked and they had to do it over again. Oh, it was a mess!

Morris: The spoilage on the packaging in the labels and cartons must have been fairly considerable.

Cutter: I don't remember that as being so tremendous. No, I don't.

Morris: Maybe we could wind up today with that marvelous memo that you wrote in September of 1927, which must have been pretty soon after you became assistant medical director, in which you asked

Morris: people--not only in the plant here, but I guess also the salesmen--what they thought should be kept and what should be dropped, in general, to re-evaluate the Cutter line. Was that a new departure to ask that?

Cutter: [Laughter] Darned if I remember!

Morris: It looks to me like it was a pretty good way of getting in touch with salesmen for somebody new in the firm who planned to stay around for a long time. And I wondered if you recalled what the results of that little informal survey were in terms of evaluating products?

Cutter: Well, of course, the matter of what products you keep and what products you kill--which is the word we termed for discontinuing a product--is one of the most difficult management decisions. It's far easier to get into a new product with a lot of enthusiasm, that's great stuff. But then when you go to kill a product, this is on the pessimistic side.

Either the use for it has declined or you've made a mistake by ever getting into it, or you haven't been able to produce it cheaply enough to compete with your competitors. But we have, many, many times, stood up to that decision. I think it has been a big factor in our growth, a willingness, when we found we were in a product or a field where we weren't doing well, for whatever the reason, we've had the guts to say, "Well, let's get out of it." That's hard to do.

Morris: Yes. I can believe it. Particularly when you got into a cost accounting system and knew how much you had invested in production.

Cutter: Well, for instance, all these products--not all, but most of the products we've been discussing today, we've dropped. We no longer make smallpox vaccine. We no longer make rabies vaccine.

Now there are many good reasons for that in my mind. When we were in that originally, the physician was the one who vaccinated the child against smallpox. The rabies vaccine was sold through the veterinarian. But later on, smallpox vaccine went through the health department. Rabies vaccine--it was a bid business. It was terribly dog-eat-dog and it was dealing with dated products. But we got out of those, when we found conditions had changed, even though we felt we had perhaps the best smallpox vaccine in the land. It was so good that we found that the U.S. Hygienic Lab was using our products as a standard for testing the quality of other manufacturers' products.

Morris: What I thought we might talk about today is your assuming leadership of the company and you and your brothers moving into top management when your father died.

Cutter: Well, surely. I'll be glad to go into that. Of course, my father was taken sick in 1930, and he didn't ever come into the laboratories after that. He died in May, 1933. I make reference to that in that article which will be published in the next Microscope with reference to the bottle that I was so proud of, the design of the first intravenous solutions bottle--the first prototype bottle--which I took up to my father to show him. He didn't really show any interest or enthusiasm in it, and it was then that I realized that he wasn't going to live very long, and he didn't. He died very shortly thereafter.

Morris: That must have been a very trying time for everybody.

Cutter: Well, yes, of course it was. Mr. Rahill, his general manager, also died rather suddenly--in other words, it wasn't a long illness--in 1930. Dad was taken sick at that same time.

Now at that time, Mr. Twining was here in charge of production and Dwight Wood was here in charge of the sales force.

Morris: Was Dwight Wood of your father's and Mr. Twining's age?

Cutter: No. He was younger. I think we've mentioned he was my father's cousin. He and Dr. Wood were brothers. Dr. Wood was here at that time and was veterinary medical director, and Dr. Foster was the medical director for human products. All of them, of course, were much older and more experienced in their fields than any one of these three boys! [Laughter]

I was the oldest and was only then thirty-two years of age. Ted was twenty-eight and Fred was twenty-six. Now that doesn't seem much of a gap in ages, but at those ages, it is quite a gap. So, therefore, when the task fell on us, why we kind of managed it as an executive committee, and I was the general manager.

Mother became president only after Dad's death. Dad remained president until his death, as I say, although he never came to the laboratories in the last three years. But my title, then, was general manager. And Ted went up to the university and took some accounting courses, and then he took over the accounting of the laboratories.

Now Fred--I think he was still on the road. I guess he was still on the road covering the mountain states, Colorado

- Cutter: and Utah particularly, because I had been handling the advertising from around 1925 to 1930. And I guess about that time it was that Ted took over the advertising. And then later, Fred took it over. Now the exact dating I don't know, but thereafter, Fred was either directly over advertising or had the advertising manager report to him.
- Morris: Was there any discussion as to which area which son would go into?
- Cutter: Well, it was more a matter of natural gravitation. Neither Ted nor Fred had any interest in production, and, as I say, Mr. Twining was still there and still very strong in production.

Improvements in Production and Immunization Processes

- Cutter: Even before 1930 I had taken a strong interest in not only the research and particularly the mechanical research, but also in production, I was appalled by the slowness, for instance, of the labeling and the use of the set-up boxes with the long strip labels around them which also had to go on these horrible paste boards that I told you about and be picked off one by one. And also the filling machines, where they pinched them off. One filled one bottle at a time from a burette.

So, going first to the labeling, I was able to get the Economic Machinery Company, which made the World labeler, to make a machine for us. At first they refused, saying that our vials were too small and the changes from one size to another would be too lengthy to make it economical. However, they'd never been in our plant and didn't realize what a horrible situation--even a make-shift machine would do.

So, we had to guarantee that we'd take the machine and all the parts they made for it, whether it worked or didn't work. So, then, the World labeling machine was a great, big factor in helping us tremendously in the labeling of our vials. It also, for instance, labeled the smallpox vaccine, which was originally in a cylindrical metal box and then later in a cylindrical paper box.

Then, from the standpoint of the box itself, the set-up boxes which are, you know, a box with a lid which, of course, take tremendous storage room.

- Morris: You've got all that empty space inside the boxes.

Cutter: That's right. And which also, in many of our packages, contained a syringe. So, that made a very long box. So, that made an unduly long strip label to go from end to end, you see. That whole thing was covered and was pasted, and sometimes those strip labels would be from twelve to twenty-four inches long and they were very difficult to get placed on the box so that they weren't crooked on it, you see. So, it was a very slow process.

So, to get around that, I went to a carton, a folding carton, which, of course, took tremendously little space to store and which also could be printed at the same time that the cartons were made, you see, by the box company.

Morris: Where did you find a supplier that could make that in all the sizes you would need?

Cutter: Oh, that we could have had made in any one of a dozen box factories around. The Smith Lithographing Company made them. I think that Pacific Paper Box Company--of, there were any number, and I frankly don't recall which one we originally had make them. It was over in San Francisco.

Morris: If they were generally available, how come it hadn't been adopted here earlier?

Cutter: Why don't we do many things earlier than we do them? [Laughter] It just hadn't. That was the way it had been done and I had a terrific job getting the cartons over to, first of all, Dr. Foster, and Mr. Twining wasn't too keen on them. Although, he was a very open-minded man.

At first, I put in a carton folding machine which would seal first the bottom, and then we'd drop the vial and the direction sheet in, and then it would seal the top. It was only quite a bit later that I was able to get over to Dr. Foster that you didn't need a sealed container, that a tuck-in flap was perfectly adequate. And the only way I was able to do it was to buy a collection of similar products from our eastern competitor and show him that it was already being done. So, there was a great reluctance to get away from that completely sealed set-up box with the label which went all the way around it, the strip label.

Then, the filling machine--that was quite a difficult thing. And actually, the early unsuccessful stages I worked on myself. The difficulty was I was working with flow-operated valves, which we never could get to operate properly. The least little fleck of material under them, and they gave

Cutter: inaccurate fillings. We had a machinist who was actually retired, but who did very good work. He came down and worked on a positive operated valve. We used syringes, some of the very small actual hypodermic syringes--

Morris: They were part of the machine?

Cutter: As part of the machine, to deliver the--on the up and down strokes, to pull the liquid we were to fill into the syringe, and then the up stroke to force it into the bottle.

Bill Donelley, the retired mechanic, built a machine with the so-called Geneva positive action or mechanical valves, which allowed this to be done in a manner which was positive. And so, therefore, we could accurately fill the material and all parts of this machine which touched the fluid could be carefully washed and sterilized. We mounted two syringes on each side of the machine. And then we also revised our washing techniques so that the vials were washed in a machine. The vials were placed in a tray, washed in these trays, sterilized in these trays, and filled in these trays.

Morris: So they never were touched by human hands?

Cutter: No, not touched by human hands afterwards. And we designed a tray cover which just allowed the one row of bottles to show, and the filling machine operator had two delivering tubes, one in each hand. So, she could fill two bottles at a time and much more rapidly, much more accurately and with much better technique than in the old way of filling from a burette, a burette being a long tube with the graduations marked on it. When the filling operation was stopped, the burette would be filled up to the top.

Then, the operator would, with a pinch clamp, allow, say, five cc's to go into this bottle and five cc's in the next. And that, of course, was strictly a matter of how skillful she was at observing and how skillful she was with her fingers. We had to put in very considerable overfill in each bottle because of the inaccuracy.

Morris: Enough to be an economic factor?

Cutter: Very definitely enough to be an economic factor. And when we got accurate filling machines, for instance, instead of filling five and a half cc's to be sure that every vial would deliver five cc's, we filled, as I remember, to 5.15 cc's, which made a very, very profound difference, particularly when we might be dealing with a product such as antitoxin.

Cutter: Then another change we made was in the syringe. The syringe, at that time, was an extremely important part of our line because we sold practically all of our antitoxins, including the tetanus 1500 antitoxin and the diphtheria one in 1500 units and the diphtheria 1000 units and all of the therapeutic tetanus antitoxin and diphtheria antitoxin were prepackaged in syringes.

And up to that time, we had been using a syringe barrel, and the plunger was a stopper. Since the glass vials were made of tubing, which varied in interior diameter, we had three different sizes of stoppers and girls fitted those by feel. And, of course, they weren't very good at it. Also, the plunger was made of glass, and occasionally, that would break. If you cut a physician's or surgeon's right hand thumb, he didn't like it very much.

So, that was one of the early projects I took on of designing a syringe. So, I designed a syringe. The barrel was of glass, the plunger--the part the physician's thumb would touch--was made of plastic, and the plunger itself was one side. And I made a groove in the bottom of it, which we patented. And this allowed one size plunger plug to fit all of the glass syringe barrels which we had, even though they varied considerably.

Morris: Did the groove allow for expansion of the barrel?

Cutter: Not expansions of barrel. The groove was in the rubber plunger plug, at the base of it, touching the fluid, and as one pressed down, the fluid forced the outside edge against the glass. You might say that was more or less like the plunger of an air pump, a hand pump for pumping up tires, for instance. It expanded out against the sidewalls.

And this, then, worked much easier than it had. But also, occasionally, when the girls had to fit them individually, one would get them too tight and it would be hard for the physician to press it down. And the other would get it too loose, and some of the antitoxin would slip out back around the plunger plug. So, this was much more economical. Also, we fitted trays up which would hold these syringes so they could be filled by the same filling machine that we used for the vials.

Morris: About when did you develop this improved syringe?

Cutter: I would say this would be from 1926 through 1936. I mean, this whole process would be my trying to get things on more of a quantity production basis.

- Morris: It would be standardizing it, too.
- Cutter: Standardizing it, right. And trying to get away from these horrible paste boards and these set-up boxes and the horrible filling methods.
- Morris: How early had the lab started supplying the syringes along with the antitoxins?
- Cutter: That had started very, very early in work. I don't remember the date when we first started making diphtheria and tetanus antitoxins, but I think the syringes came out simultaneously, if not simultaneously, very, very early.
- Morris: Was this a new idea with Cutter or did other companies do the same thing?
- Cutter: No, definitely it wasn't. The Eastern manufacturers also had them. They had them before we did. They produced tetanus and diphtheria antitoxins before we did, and they had syringes different from what we did.

Our final syringe, however, was without question the very best syringe on the market. And unfortunately, it was about the time that we got that syringe that diphtheria and tetanus antitoxins, all except the 1500 unit tetanus antitoxin, became less and less a factor. Diphtheria, of course, was going out because of the--and tetanus also going out--because the means of immunizing people against diphtheria and tetanus actually reduced the number of cases down to practically nothing for diphtheria.

I remember, when I was interning at the San Francisco Hospital, a case of diphtheria. I was on the morning shift and took over, and the man had been admitted the afternoon or the evening before and had been in the hospital all that night. He came in unconscious, and diphtheria was so little known then that they hadn't looked at the throat.

I came in and looked at the charts in the morning when I was taking over, and I saw this very high pulse and very low temperature. I went with a tongue depressor immediately, and the man had a horrible, terrible diphtheritic membrane across it. So, diphtheria, even then, was becoming a very rare disease.

- Morris: Was this because people were being immunized?
- Cutter: Yes, that's right, but also, those who weren't immunized were exposed to a lesser degree, particularly since the immunization started among the school children.

Morris: It was at the point that diphtheria and tetanus began to be less of a problem as illnesses that Cutter came up with the pertussis vaccine, which then went on into the standard immunization that children get now.

Cutter: That's right. We had been making pertussis vaccine, and we had been making it from fresh strains of pertussis. And then we came out with a high count pertussis, which was a better immunizing agent than the one on the market. And then later, we made a combination of the three products which we called DPT.

We were the first to come out with that. Actually, that was a personal one of mine, because I felt it was a shame that children had to be stuck three times to be immunized when they could be combined. And the reactions were certainly not three times more than using each one individually.

Morris: Could you tell us a little bit about how you went about combining the three?

Cutter: We just combined them, that was all. They were vaccines and we just made the count of each higher. Let's see--we made each one the same count as it would have been had it been an individual vaccine. Now, as an individual vaccine or toxoid, there was a certain amount of either reduction or a standardization. So, we were able to get in this one dose of cc, the same immunity factors for each one of its components as though each had been given individually.

Morris: Did this occur to you because of the earlier mixed respiratory vaccines?

Cutter: No. That was an entirely different thing. That was trying to get different strains to treat the same condition, the same respiratory conditions. This was trying to prevent the common cold. This was three different immunizing factors combined, for three totally different diseases.

Morris: The super concentrated pertussis vaccine was produced in 1937, so the DPT would have gone on the market a little bit later?

Cutter: Later. Yes.

Morris: What kind of response did you get to this?

Cutter: Oh, it was a very great success. It went over well. We don't make it any more, of course. We've gone out of biologics. But they are still used in this combination.

Morris: Did it have any particular impact on your sales, for instance?

Cutter: Oh, yes. It was a very great sales success.

Morris: Was this an early pediatric product?

Cutter: That's right.

Establishing Management Leadership

Morris: Going back to the management end of things, did your mother take an active role when she was president?

Cutter: No. She was never in an active role. Of course, in those days, really, we only had a board of directors' meeting probably once or twice a year, you see. We weren't publicly held. It was strictly a family corporation. And Mother would, of course, attend all of the board of directors' meetings.

And actually, it was only quite a bit later in the late Thirties or Forties that she became chairman of the board and I became president. I was actually the chief executive officer from 1930 on, but my title was "general manager" at first.

Morris: That must have been quite an overwhelming responsibility for a young man in those days.

Cutter: Oh! Maybe you think it wasn't! All this happened. The world collapsed around me. I had my father taken sick and Mr. Rahill dying and the Depression, of course, right around our ears. It was a terrible depression! And my younger brothers, who were later to grow up and be such great helps to me, were, at that time, so much younger and so inexperienced in business that they couldn't help me greatly.

Ted, of course, being the next oldest, was a great help to me. But, at that early moment, the monkey was on my back. I had to make it work, and I particularly had to get along with my two brothers, because, after all, they had a stock ownership equal to mine. There was no question about that. As I think I mentioned some time ago, in my first year away at medical school, when I was able to look at the forest rather than the trees, I had realized that if the three of us did go into the laboratories, that the most important thing for me to do was to get along with my two brothers. What could be more important? Because if three brothers, each holding approximately a third of the company, want to go three different ways, this would be a very difficult situation.

Morris: When you say "equal stock ownership," had your father given each of you shares in the company?

Cutter: Some. My grandfather had given some. But since Mother was not active in the business, it amounted to the three of us each having a third of the total control of the business. That's really what it amounted to.

Morris: How was the first stock issued for you boys to receive the shares if the company was all owned within the family?

Cutter: Well, isn't this terrible! I had so many other things on my back about that time that just what happened and where it came from, I don't know. But, in any event, the stock control of the company rested in the three brothers.

Morris: Was there any sense among the older executives of the company that maybe they should become president or chief executive?

Cutter: Oh! I should have covered that. No. Actually, none of them wanted it. Mr. Twining felt that he had production and that was all he wanted to have. Dwight Wood felt he knew nothing about accounting or production or general management and he wanted no part of it. Dr. Wood and Dr. Foster were both oriented to the scientific side and neither of them--no, there was absolutely no feeling of that.

And, as a matter of fact, through the period from when I came into the laboratories and until Mr. Rahill's death, I had more and more come into things which touched on general management. For instance, even as early as 1923--have you come across anything on the coordinating committee up there?

Morris: Very little.

Cutter: Well, anyway, I established the coordinating committee before we moved. That wasn't the name of it at that time. The monthly meeting was what it was originally, I believe.

Morris: That's a good title.

Cutter: Yes. When I got into management, I realized that there really was no tie-up except a very loose verbal thing back and forth, no getting together and talking over mutual problems of sales and production and, of course, there wasn't any--you might call it--research.

Cutter: But at that time, then, I proposed and they accepted, a general meeting. Well now, as I look back on that thing, it was rather wet behind the ears. We had several who talked very voluminously, so I limited the time on each subject, I think, to ten minutes. [Laughter] I blush when I think back on how presumptuous I was to have done some of the things I did.

That, actually, was a very great improvement in our method of operation. At least, the right hand learned what the left hand was doing. And then, since I was chairman of that--I blush now to think that really it was a great assumption, but nevertheless, it was very necessary. The mere chairmanship of that so-called monthly meeting took quite a bit of management planning on my part--it was I who had to get out the agenda and to fish for things which should come before all of them. Later on, that became a weekly meeting. And, oh, it went through what was later called the management meeting and then later called the coordinating committee. It had several different titles.

While I made the decisions with reference to it--I mean, they could recommend and I would make the decisions--nevertheless, it was very rarely that I would veto it when there was an obvious consensus of opinion, you might say. For a time, it was as though this was a committee-run business. And I had to stop that.

There was one time when I definitely differed with all or most of those on the committee and made it very clear that we were not running this business by committee.

Morris: The committee made it clear to you?

Cutter: No. I made it clear to the committee.

Morris: Do you remember what the issue was?

Cutter: I haven't the least idea. I haven't the least idea. I just remember that I had been going along. In other words, my opinion agreed with theirs, or, if it didn't I didn't feel it was important enough to inflict my opinion over what they thought was best.

You know, they worked along better when they were helping make the decisions, and I wanted them to help make the decisions. But I didn't want them to get the idea, which they evidently had, that this was a committee running the business.

Morris: That's interesting. You said that sometimes you had to fish around for things which should come before them.

Cutter: Well, now, that's going clear, clear on back to the Twenties. That was because they'd never had any meetings before.

Morris: So that as these meetings went on, you really began to get a sense of the corporation--

Cutter: Overall.

Morris: Overall. And this, then, led the committee as a whole, and you as its leader, to think in terms of planning?

Cutter: This is right, yes. Well, for instance, here's one thing now that goes back prior to 1930.

As I came more and more into the general management, I found we didn't know whether we were working at a profit or a loss until we took a physical inventory at the end of the year. There had never been any budget, and at that time, around 1930, I was working on a budget system. And I remember Dad urging me on on this, saying, "I've been trying for years through Mr. Hopkins and Mr. Rahill to get a budget, but I've never been able to do it."

And there was just no planning. Aunt Norah, through the control of the checkbook when they got overspent, why she was the valve which said, "Look, you can't spend any more." [Laughter] The suppliers would tighten down on us and we wouldn't be able to pay salaries and wages. That was really the safety valve. And it was only then, when we got into the Depression, as I think I've mentioned, that we established a budget--and this was an outgrowth of my work on the budget.

It was very, very simple. Until we had a dollar in the till, we didn't spend the next dollar.

Effects of the Great Depression

Morris: How did the Depression affect the laboratories? Did prices drop or did your customers not buy?

Cutter: Prices dropped and overall sales--people didn't and couldn't buy. I think it probably affected us much less than it did many industries. But it was nevertheless a definite effect.

Cutter: The reason I know so well--not only did we have to let people go, but also those who remained--took, first of all, an across the board cut of ten per cent. And then, later on, a ten per cent additional decrease in our wages and salaries, applied only to those who were toward the top of the pay scale. There was only a ten per cent on the bottom scale and, I think, those near the bottom. I do know about the extra ten per cent on the upper end, because that included my salary, and we had to cut down at home.

Morris: What about Berkeley in general? Did you have large numbers of people looking for work?

Cutter: Oh my, yes! It was just tremendous. You didn't go through that, fortunately and unfortunately! It was just a terrible time. People who had been affluent just didn't have a thing left. You see, the stock market had crashed, and many people had investments in stocks. And many, many people had been trading in stocks on margin, and when their margin was reached and they couldn't pay more, why they were just sold out, and they had nothing.

Morris: And there were no government controls?

Cutter: You mean on margins? No. In other words, as I remember, your margin might be as small as ten per cent. In other words, you paid down ten per cent to your broker and he bought shares for the other ninety, and as soon as the stock went down ten per cent, you were sold out. And you see, this is what happened to many, many people who had just done wonders in that wonderful period from 1927 to '29. The stock market had gone up like that, and they were on Cloud Nine and spending Cloud Nine-wise, buying homes and land. In the Valley, many of them were foreclosed by the Bank of Italy.

Morris: This was the forerunner of the Bank of America?

Cutter: Well, yes. In other words, many of the ranchers had bought their ranches on time and they were just foreclosed out of their ranches. Oh, the Depression was a terrible thing! The younger folks now have had what they thought were depressions, you know, when the stocks were in what you call recessions, and they think they've had it. But they just can't conceive of what that 1930 to 1934 Depression was.

Morris: Would the ranchers' troubles have affected your veterinary business, too?

Cutter: Yes, indeed, that was affected, and the veterinary business was a very strong part of our business then. Oh, no! We were affected! In the overall, we weren't affected as much as, let's say, the textile business in New England or your capital goods.

Nobody put in new equipment or anything like that. Goodness! You couldn't use what you had. And what you had, you made do. So, it was a very difficult time.

Morris: Did Cutter have any of its money in the stock market at that time?

Cutter: Cutter Laboratories? No.

Morris: What was the company's financial picture while you were general manager?

Cutter: Well, it was kind of nip and tuck because, as I told you, Aunt Norah would have to withhold salary checks and pay a little bit. She kind of did it on the basis of need, actually. [Laughter]

Morris: Even into the Thirties, into the Depression?

Cutter: Yes, in the early part of it. But then, it became better even during the Depression. In other words, our so-called budget of not spending a dollar until we had it in the till took care of a lot of this overspending that we had done before. So, from that standpoint, the laboratories became strong financially starting right out at the beginning of the Depression.

Morris: Would the payments received from your customers cover all of your costs of the materials and the plant equipment?

Cutter: It had to. It had to, under our budgeting. That's all we had. And to get a loan or to increase a loan in that period was practically impossible because many of the banks were going broke. We had bank failures all around.

Morris: I remember Mr. Twining writing of his concern that there was expansion of the plant just prior to the Depression, and I wondered how you financed that?

Cutter: Let's see. What expansion did we have just prior to the Depression?

Morris: It had started about the time of World War I.

Cutter: Now, you're talking about the expansion which actually came way before the Depression. It came in, I would say, the Teens rather than the Twenties. And that was the building of the plant for hog cholera, which was a financial failure, and the building for the anthrax serum, which was a disappointment from the volume.

They'd had anthrax epidemics rather frequently prior to that, and then, after they built and expanded and hoped for large sales at the time of an epidemic, I think it was eight years after they'd built the plant before they had what would amount to an epidemic. And here they had this tremendous inventory of anthrax serum and an inventory of horses and a barn. We later on made the barn into a serum barn for antitoxins, for tetanus and diphtheria and other antitoxins.

And later we made our blackleg vaccine over in what had been part of the original anthrax area.

Morris: But you still had the note--the loan and mortgage--to pay off for that plant expansion?

Cutter: I just don't remember on that. My memory doesn't go well for financial matters.

Employee Relations

Morris: Now, what about personnel at that point? Was there yet an employee association?

Cutter: The employee association I don't think came on until later than that, quite a bit later. I think, actually, don't you note in the Microscope that for a while it was published by the employee association?

Morris: In 1939, when it began, it was published by the employee association, and I assumed that the association was well established by then.

Cutter: Well, I don't think it had been established too long before that. Because, you see, the employee association had no union affiliation or anything else until the war years, when we were just having to hire anybody that came through the gate. And it was only at that time that the International Longshoremen's and Warehousemen's Union came in and took a strike vote and were able to put the union in. Prior to that



The Cutter 'Family Feeling'

Lab girls in front of main laboratory, 6th and Grayson Street, about 1908. Roberta Sydnor, unknown, Josie Cutter, Laura Colburn, Mabel Martinson, Mrs. Edith Twining (or her twin sister).

"The Girls" went up Mount Tamalpais for a picnic, about 1907. Note geared locomotive, 'rough neck' sweaters, box camera, button shoes.

Edward Ahern Cutter, Sr., alongside his 1915 Cadillac touring car. Near Yellowstone Park, 1923.

• First boat ride, Cutter Lab picnic, about 1912.

Christmas party, 1946. From left: C. M. Twining, Mrs. Twining, Margaret K. Cutter.

All captions are by Robert K. Cutter, written on the backs of the photographs in 1972.



Faint, illegible text at the bottom of the page, possibly a caption or a list of items.



Above: Tug of War—Cutter picnic, June, 1945, at Alvarado Park, Richmond

Below: 1947 Strike



Cutter: time, there had been certain possible feelers on the part of union leaders to come in, but there was such a strong feeling against wanting anything to do with outside unions that they never even made a serious trial until that time.

Morris: That's interesting. What do you attribute that to?

Cutter: Well, I think that up till that time, we had employees who had come in, you know, one at a time and who had the feeling of the laboratories. Heck, we knew all of them, and I think they just felt they would be better treated by what they used to call the Cutter boys than they would be under a union, and they just didn't want any outside interference.

Morris: I've come across a number of mentions of people's brothers and sisters and fathers and mothers having worked for the company or working now.

Cutter: Yes, we had many of those. In other words, there was no rule against having relatives come in, regardless of position. As a matter of fact, we particularly liked to have sons and daughters and brothers and sisters come in. It meant that they felt that the laboratories was a good place to work, and they wanted to work where their relatives had worked. In other words, it was all to the good to have them.

Now, we didn't allow a relative to report to a relative. Earlier, it had happened. I remember Mr. Twining had a brother-in-law reporting to him, but he later went to another place to work.

Morris: Could you tell me how you came to set up a pension plan?

Cutter: We were one of the earliest firms to come out with a pension plan for our employees, and certainly one of the very, very earliest of our size to even think of it. In the middle of the Depression--I would say that it was probably about 1932--I came through the department where they were washing the bottles in which media was grown and on which bacterial cultures would later be grown. These were bottles which had served their purpose, had been sterilized, and it was necessary to get the gelatinous material out of the bottles. In the crude way it was done at that time, a man stood there with a rubber hose from a faucet with relatively hot water and squirted it into the neck of the bottle. And here was an old chap doing this and his hand shook so badly that he couldn't hit the bottles. [Laughter]

Cutter: And I thought, "Well, obviously, we never should have kept him that long, but I can't fire that old man now. The first thing I'm going to do when we're financially able is to start a pension plan, so that when this does come up, the man could be laid off." He knew he wasn't doing the work and he couldn't be happy at it.

There was no government pension then at all, no Social Security. So, it was the very first thing--it wouldn't have been more than '34 or '35.

Morris: It was 1934.

Cutter: Well, anyway, we put in a pension plan. It was a pension plan underwritten by the Aetna Insurance Company.

Morris: How did you decide on Aetna?

Cutter: Well, we went to the Aetna Life Insurance Company after trying to find out who around here had had the most experience and which companies had this kind of thing. And, as I say, there wasn't much help in that way. However, Aetna did write annuity plans, as they called them, group annuity plans, so we worked this out with them.

It was a voluntary, contributory plan. In other words, nobody had to come in under the plan if they didn't want to. If they came in, they had to contribute something to it. However, the laboratories picked up a large part of the--

Morris: I think it was two parts company and one part employee.

Cutter: I've kind of forgotten, but you have the book there.

Morris: Yes. It's the original 1934 edition. It's got an introduction by your mother and then your note, written in 1959.

Cutter: [Looks at pamphlet] Now here's a case where Mother wrote the note, you see, as president.

Morris: Was this something that she strongly supported?

Cutter: She was very much in favor of this. Yes, she was. Oh, yes. I went over this with her because this was quite a step for us. In other words, we were, for the laboratory, piling up quite a potential liability for future years, you see. I went all over this with everybody, of course with Ted and Fred and, of course, with Mr. Twining and Dwight Wood, Dr. Foster, Dr. Wood, and, of course, my mother. We all discussed it

- Cutter: because this was a very unusual and serious thing for a business of our size to take at that time. This, as you well realize, was before there was any federal pension.
- Morris: Yes. Were you pretty well convinced that there would be a federal retirement plan?
- Cutter: No, I don't think so.
- Morris: [Refers to booklet] Toward the back of the booklet, it says that "the company reserves the right to make changes in this plan, depending upon what the federal government decides to do in this area."
- Cutter: I don't remember when the federal government--there must have been talk of it by 1934.
- Morris: The Social Security Act originally was passed in 1935.
- Cutter: Was it? Well then, you see it must have been in our minds at that time. Oh! Here it is. [Refers to pamphlet] "It is the hope and contention of the Cutter Laboratory to continue this plan until the indefinite future. However, since possible future circumstances--for example, government pension legislation--may make it necessary to amend or withdraw the plan, the laboratory must necessarily reserve to itself this right. However, no change will affect the retirement incomes purchased by your own and the laboratory's deposits prior to the date of the change."
- This is rather interesting. I remember this booklet very definitely because the booklet proposed by the insurance company was an atrocious thing from an employee relations standpoint, just absolutely "thou shalt not." It was just no good whatsoever. So we insisted on writing this ourselves in our own language, subject to their going over it and making sure that we hadn't made any technical mistakes. But we didn't let them put in their mother-in-law language.
- Morris: Did everybody have a hand in writing the copy?
- Cutter: No. I pretty much wrote it.
- Morris: It does come through as a very clear and simply stated publication. That's a tone that runs through all of the company publications.
- Cutter: Well now, I'll tell you, on the company publications--as early as this, I was writing them. But very soon thereafter, my

Cutter: brother Fred took a hand in practically all of the important writing for publications or anything of that kind, bulletin board notices. I found that he wrote exceptionally well. We would cooperate. If he wrote it, he would send it to me for suggestions. If I wrote it, I would send it to him. And we practically always came out with a better piece. If it was an important piece, we came out with a better piece than we would have individually.

For instance, you remember the letters on the polio situation which turned out to be such tremendously effective and successful pieces of public relations? Those I wrote first and sent to Fred. And we probably had, back and forth, a dozen drafts on them before they went out.

Morris: Were there other employee benefits at this point? Did you have a health service of any kind? The health insurance program is later, but I wondered if, being in the medical supplies business, you had a company nurse or anything like that?

Cutter: No. We were too small to do that until much later. Well, you see, and further than that, Dr. Foster and I were here, and actually, we were the first aid and emergency stations and also, to a considerable extent, the individual physicians of many of our employees. [Laughter]

For instance, we had one man who had a very deep psychiatric problem and he would come to my office maybe once a month just trembling and not able to function. And I'd sit down and, although I made no pretense of being a psychologist or a psychiatrist, I could at least let him talk his problems out and ask a few questions and all and help him to go back to things and face up to them.

No, we were very definitely not there only just to bandage up a finger that got cut or something of that kind. We never did any surgery, other than perhaps to remove a piece of glass or a splinter from a finger. But medical things--we'd get quite a few of them on our laps.

Morris: So that this way you did, in a sense, keep a private practice going?

Cutter: Yes, yes. [Laughter]

Marketing Pamphlets and Competitors

Morris: I came across this pamphlet on the veterinary business. The date on this, you noted, was 1932. So, would this be one that you wrote, or would this be one that one of your brothers worked on?

Cutter: Well, this would be by Fred, because it was he who contracted for the Thistlethwaite drawings. I don't know whether you noticed those drawings. Aren't they wonderful?

Morris: They're handsome. I wondered what the story on those was.

Cutter: Well, this artist came in to Fred with some of these drawings and Fred liked them and here you see [referring to pamphlet] "Thistlethwaite reproductions now available in color." My goodness! We still have ranchers who write in: "Do you still have any of those pictures?"

Here's a chuckwagon, you see, with a wash tub out there and the buckets of water and the big old coffee pot. And this horse has just kicked the clippers out of this one's hands, and this one's sitting down on his heels smoking a cigarette. Excellent! They were just excellent.

Morris: Was this the first time that you had used something like an illustration that somebody might want in their own home as a sales--?

Cutter: I'm sure it was the first. Yes.

Morris: It's a very handsome sales promotion piece and very contemporary.

Cutter: Yes. It's excellent.

Morris: When I saw the date, I was startled because it looked like something that would be usable in the same form today.

Cutter: This is right. And the advertisements, even the small three-inch advertisements, carry the same drawings.

Now it was only shortly after that that we came out with Blacklegol.* And here Fred did a very wonderful job. He insisted that it be sold at a higher price, a considerably higher price. Part of the price then went into Fred's advertising budget, so that he had more to work with to get over the story of how much better it was. And Fred did just an excellent job. I would say that Blacklegol's* success, with all his work on his veterinary products, was really a monument to him.



E.W. Thistlethwaite drawing for campaign to sell dealers on selling Cutter veterinary products, developed by Fred Cutter in 1932. In 1972, Dr. Bob wrote that his brother's promotion "was the best we ever had...and we still get requests for these long out of print drawings."



Drawn by E. W. Thistlethwaite
for the Cutter Laboratory

Reproductions of these
drawings suitable for
framing sent on request.

Cutter Distributors ... are More Than Merchants!

Look up the druggist in your region who stocks the Cutter line. The very fact that he **does** feature Cutter biologicals is a double guarantee of dependability.

It shows that he is the type of professional man who knows the value of precision . . . the precision and never ceasing care that must go into the production of vaccines and serums before they can be allowed to be used on precious human lives. He knows that this same precision should go into the production of veterinary biologicals as well; and knows such

to be the case with the Cutter line. The same rigid standard, to which all Cutter products for human use are produced, must be met by each lot of vaccine and serum for veterinary use before it can be marketed under the Cutter label.

When any disease menaces your live stock, go to your Cutter distributor. You will find him more than just a merchant. He is well informed, and can furnish you with dependable information, and dependable biologicals if they are required.

Free! Valuable "Cattle Disease" Booklet. From your dealer or write direct.

The **CUTTER** *Laboratory*
Established 1897

Berkeley, California

Branches and depot stocks at

Chicago * Denver * Seattle * Los Angeles
New Orleans * San Antonio
Fort Worth

Cutter Blackleg Bacterin 10c per dose in small quantities. If your dealer does not stock, write direct or quantity prices.

THE CUTTER LABORATORY,
Fourth Street, Berkeley, California
Please send "Cattle Disease" Booklet to
Name
Address

- Morris: Was he the one who developed the mailing list to individual ranchers?
- Cutter: Yes. Under his direction, that was done.
- Morris: And then, they would in turn specify Cutter products to their stockman and to their veterinarian?
- Cutter: Yes. I really should write more on this, shouldn't I?
- Morris: You should, unless you'd like to talk it.
- Cutter: Well, I would like to have it put in there.
- Morris: Yes, because that's a handsome piece. A few years earlier, there are also mailing pieces for physicians which are quite interesting--blotters specifying individual products and things like that.
- Cutter: Well, if you'd bring those down to me next time, I'll be glad to go over them, and I think I would be able to tell you who would have gotten them out.
- Morris: All right--and what kind of response they had. In that same era, I came across the phrase "Cutter competition" in regard to sales and pricing. I wondered if that was a chance phrase, or if this was a part of a sales philosophy?
- Cutter: I don't remember. It had to be a chance phrase.
- Morris: Well, I'll look for some more on it. Now this also comes from 1930, the early years when you and your brothers were taking over management. It's a series of wires back and forth between the laboratories and the Bureau of Animal Industry in Washington. Apparently, there was some argument about the name that would be used for a product that Lederle Laboratories was issuing. It was an animal vaccine.
- Cutter: I remember this. In other words, as I remember it now and I'm just quoting from memory, we backed them into a corner on the thing, which just showed that they were absolutely illogical.
- Morris: That's exactly the way the wires read. I wondered how it came out. Did you and Lederle issue the same vaccine with a different kind of name on it?
- Cutter: This I don't know about Lederle at all, but I remember we were requesting a name and so forth. In other words, what I remember, it came out--



CLASS OF SERVICE DESIRED	
DOMESTIC	CABLE
TELEGRAM	FULL RATE
DAY LETTER	DEFERRED
NIGHT MESSAGE	CABLE LETTER
NIGHT LETTER	WEEK END LETTER

X

You should check class of service desired; otherwise message will be transmitted as a full-rate communication.

COPY OF WESTERN UNION TELEGRAM

[Handwritten signature]

BERKELEY CALIF 6/20/30 HY

CHIEF
BUREAU OF ANIMAL INDUSTRY
WASHINGTON D C

IN VIEW OF LICENSES ISSUED LEDERLE REFERENCE BAI NOTICE NUMBER FORTY APRIL THIRTIETH FOR MASHITT'S MIXED VACCINE STREPTOCOCCUS COMBINED VACCINE AND OTHER VACCINES WE DON'T UNDERSTAND YOUR SUGGESTED NAME CHANGE TO BACTERIN ON OUR INFLUENZA MIXED VACCINE EQUINE LICENSE APPLICATION MAY WE ALSO USE NAME VACCINE PLEASE WIFE OUR EXPENSE

THE CUTTER LABORATORY

Sent N/L as per FAC JR 3:30 PM
Copy mailed Dr Stewart Stockton
and copy made for FWW

SENT AT
WESTERN UNION TELEGRAPH
35 SHAWMUT AVENUE
BERKELEY 3232

STANDARD TIME INDICATED ON THIS MESSAGE

Postal Telegraph



ALL AMERICA CABLES

COMMERCIAL CABLES

This is a full rate Telegram or Cablegram unless otherwise indicated by signal in the check or in the address.

BLU	DAY LETTER
NL	NIGHT LETTER
NM	NIGHT MESSAGE
LCO	DEFERRED CABLE
NLT	NIGHT CABLE LETTER
WLT	WEEK END CABLE LETTER

F98 57 NITE COLLECT DX WASHINGTON DC 7
CUTTER LABORATORY=
FOURTH AND PARKER STS BERKELEY CALIF=

1930 JUL 7 PM 8 34
\$39.420
\$8.184 TO BE PAID

LICENSES ISSUED FOR OVER TEN YEARS HAVE IDENTIFIED DIMENSIONS DEVITALIZED ORGANISMS AS QUOTE BACTERINS UNQUOTE WHICH TERM BY AGREEMENT APPEARS IN ALL ISSUES YOUR LICENSE DURING THAT PERIOD ON RECEIPT PROPER APPLICATION QUOTE DEVITALIZE ORGANISMS UNQUOTE WILL BE LICENSED IN LIEU QUOTE BACTERINS UNQUOTE THE LEDERLE CASE TO BE HANDLED ON RETURN EICHORN FROM

Morris: Dr. Houck wanted you to call your preparation "bacterin," and this was a term I'd never heard used before. I wondered what happened to that term and--?

Cutter: Bacterin is a--when it came about, I don't know, but it's a killed immunizing product derived from the organism presumably causing the disease. [Looks through wires]

Ah! I see here. He said that we had to change our mastitis mixed vaccine streptococcus combined and other vaccines. We had to not call them vaccines, but call them bacterins. For some reason, we didn't want to do that. I imagine that it would have been an expensive change in all of our labels, among other things. They had licensed Lederle, apparently, to market the same products as vaccines, so we just kept on needling, needling and needling until--I've forgotten what the thing was, whether we caused Lederle to have to change theirs to bacterins too, but our insistence was on the point that we didn't feel that it should be one thing for one and another thing for another.

In other words, this is a government-licensing body. If they're going to make us change, then, by golly, they shouldn't allow any other laboratory not to change simply because it was a larger, more influential company.

Morris: Was there the sense that Lederle was pushing to have a separate licensing?

Cutter: I don't remember. All I remember was that we pushed them into a corner on that. But anyway, they were way out in left field and we insisted that they be consistent.

Morris: Did this Bureau of Animal Industry eventually become part of the Food and Drug Administration?

Cutter: No. It has gone under many different names, but it was the licensing body for veterinary products.

Morris: Did you have a lot of contact with Dr. Houck?

Cutter: Oh, yes. He was the head of it.

Morris: Did he come out here?

Cutter: I presume he did. I didn't have any contact with Dr. Houck per se.

Morris: How about Lederle? Did you have this kind of argument with Lederle on other issues?

- Cutter: We didn't have any argument with Lederle. We didn't contact Lederle in this at all. All we did was just say to the Bureau of Animal Industry: If you insist on our changing our name, then, by golly, you're going to insist on everybody changing that name, or we won't change.
- Morris: And you made it stick?
- Cutter: Yes. They were out in left field! Of course we made it stick. We were kind of feisty, I'm afraid. [Laughter]
- Morris: I was impressed with the tone and the persistence of the wires.
- Cutter: Yes. They didn't push us around too much! [Laughter]
- Morris: Were there many of this kind of exchange with government agencies at this point?
- Cutter: Oh, not many, but enough so that when they were going to try to put over something on name changes or something like that with the Cutter brothers--we kind of got a name for being pretty feisty back there, and they'd damn well better be right before they insisted on anything! [Laughter]
- Morris: Was there eventually, then, a leveling off of what you felt were unjustified--?
- Cutter: Yes. In other words, they became more careful and less arbitrary in what they proposed. In other words, they didn't just say: I'm God and this is the way it's going to be, and what can you say about it?
- Morris: When one of the federal agencies licensed you, was that a blanket license or, in the Thirties, did you still have to go to them for approval of every new product?
- Cutter: Individual license. First of all, we had to have a blanket license, which was a license of approval of the firm in general. In other words, that you were a reputable firm, that you had good equipment, that you had well-trained men and that sort of thing. You had to have that before you got a single license on an individual product. After that, then, you had to have a license on each individual product.
- Morris: So that you had constant contact back and forth with Washington ?
- Cutter: Oh, yes. Right. Both in the human and the veterinary fields. They were two different agencies, of course. Dr. Foster, originally, would have had it with the human agency, then called

- Cutter: the Hygienic Laboratory, and Dr. Wood would have had it with the Bureau of Animal Industry for veterinary products.
- Morris: And there in the Thirties, you said that you did patent some of the syringes?
- Cutter: Right.
- Morris: Earlier you'd said that you didn't patent some of the original developments in order to keep the information to yourselves. When did you begin--?
- Cutter: Well, we still do that. In other words, there are certain things that we patent and certain things that are just useless to patent because we wouldn't know whether somebody was infringing them or not. If it's something in a process, we're just better off to not patent it and to treat it as a so-called trade secret.
- Morris: Does this involve you in people trying to come into the plant to find out what you're doing?
- Cutter: One who is operating on a trade secret always has the possibility that one of his employees may be proselyted into another laboratory. We've had that happen. So, that's just one of the risks you have. But if you patent it and it's something you can't enforce, well, you just might as well not have your patent because when you patent, you have to publish, so anybody can use it, but, presumably, only under your license.
- But if they can do it without--you would never know whether they'd infringed it or not. It doesn't make much sense to get a patent and to go telling everybody how to make it.
- Morris: Yes. That's a very fine dividing line there.

Trade Names

- Cutter: While it is fresh in my mind, one rather important thing that came out of our veterinary packaging was the use of trade names. Now at that time, the Bureau of Animal Industry, which was the licensing and regulating body of the United States, was of veterinarians and for veterinarians, and very few of them were from the Western states. Most of them were from the Eastern states, you know, where it was dairy practice and all.

Cutter: And there was very little sympathy or knowledge of Western range practices and, at that time, a lack of sufficient veterinarians to go out and vaccinate. There just weren't enough veterinarians to vaccinate the cattle, so the veterinarians couldn't do it.

The BAI put in as many rules as they could to favor the veterinarian and to make it difficult for the farmer or rancher to vaccinate his own large animals--cattle, sheep, swine, or, for that matter, chickens.

Morris: Was this an effort to upgrade the image of the veterinarian?

Cutter: They were imbued with the idea of veterinarians only, that anything to do with animal diseases: prevention, treatment, or anything else, should have a veterinarian in it. And so, they took a very dim view of even common things like anthrax preventives and blackleg preventives and fowl pox vaccine being administered by the rancher or his employees other than veterinarians.

So, one of the things that they did along that line was to say the vaccine had to be labeled with the scientific name of the organisms it contained. Well now, here's an example here. [Refers to label.] The scientific name is *Clostridium Chauvei-Septicum Bacterin*.

Morris: What a mouthful!

Cutter: Sure. Of course, no rancher could go up and ask for this. The BAI said that any other name had to be in lesser prominence than this. So, we came up with this idea. These unpronounceable names got worse as the compounds became more complex, as they added additional organisms. So, this became even more unpronounceable.. So, we put these in all caps and Blacklegol S* was the trade name. The generic name was in all caps and the trade name was in upper and lower case.

This came out of my early working with type for the high school paper and the university papers, knowing that caps were much more difficult to read than were upper and lower case. So, we put this definitely in a subordinate position, but we put it in a little box and we made it a pronounceable name that the stockman could get hold of. In this case, instead of *Clostridium Chauvei-Septicum Bacterin*, it was simply Blacklegol S*, in a box, with the "Cutter" underneath it.

And this took very well and gave us a great boost over our competitors, who did not use this type of trademark. We actually had to fight this through the BAI. We made it stick, from the standpoint that this was smaller type, it was in a

Cutter: subordinate position, and all. But, nevertheless, we were able to get over our practical thing and avoid what they were really trying to do, something that they really had no right to do.

If we could have gone in and fought it to the Supreme Court, I'm sure we could have won, but that would have taken more resources than we had.

Morris: I can see that. Now you're saying that the other manufacturers, for a while, stuck to the full generic name on their labels?

Cutter: Yes. And they didn't go to the trade names as we did. They didn't establish trade names, so this gave us a great advantage here in this Western range country.

Morris: I can see that. Is this the origin also of the trade names for human pharmaceutical products?

Cutter: It worked out that way with the human pharmaceuticals, too. It was a much lesser degree of importance for them than here in the veterinary field.

For instance, now this is an easy one to pronounce: anthrax spore vaccine. Our trade name was Charbonal *. But, you see, when you look at that, you don't look at "anthrax spore vaccine" even though it's right at the top.

Morris: Your eye goes to the box.

Cutter: It goes into the box and to the upper and lower case. So, this Charbonal* became the name which was asked for, even with that easily pronounceable anthrax spore vaccine. Now, that isn't a dead subject by any means. As you know, Cutter-Haver-Lockhart have taken over all the cartons and so forth for the veterinary field there in Kansas City, and here's a letter I just received today from the president of that, Vic Young. Originally, any trade names they had were in upper case. And the traditional name was in upper and lower case. So, they had just done it backwards, you see.

Now, what I pointed out here was that this trade name was too far down [points to label], too far down below to get tied up immediately with the name of it. And they say: "Here's another one that is higher." But they think that's too high. Well, frankly, if I were doing it, I would suggest that it actually could be just a little higher, but certainly no lower, to get tied up with that name.

Cutter: So, what I'm suggesting is that, since they are going to have to go back and do some of these over--as they agree--that they look into their entire situation on this and perhaps get their specifications somewhat differently. So, it's still a live subject.

Morris: Very much so. That's interesting.

Cutter: So, that's the end of what I have to say on that.

Management Consultants

Morris: When did you decide that you needed a faull-scale study of the firm's operations? I brought you down the two volumes on the George S. May Company study that was completed in 1938.

Cutter: That was the old Pulse.

Morris: Now why do you--?

Cutter: The Pulse. That was his nickname.

Morris: Why did you call him the Pulse?

Cutter: I don't know how he got that name. I didn't pin it on him, but it was what the folks around--

Morris: That's Mr. Henrikson who was the Pulse. Was he the man that was here in the plant?

Cutter: He was the one who did the study and so forth.

Morris: Did your monthly management meeting discuss this and decide it was a good idea to have this kind of a study done?

Cutter: Yes. And there was considerable question, too, as to the desirability of it.

Morris: What were they thinking about why it might not be desirable?

Cutter: Oh--a son of a gun from out of town, you know, who'd mess up things and get into things he didn't know anything about. It was all very true. He did. [Laughter] Overall, he had a way of working where they guaranteed to make certain savings. This was not a good way to do it.

Cutter: So, I very early said, "Well, look. Let's forget all that and let's try to--."

Morris: When you say they guaranteed to make certain savings, how could they do that if they were outside consultants?

Cutter: Well, that was George S. May. His method of doing things fell into disrepute at a later date. But we got a lot out of this and we also--you will note many notes in there where we turned down or modified many of the things he proposed, and accepted many of them. And our whole conception of using outside consultants came from this experience.

The next time we had outside consultants, it was Booz, Allen and Hamilton who, perhaps, as George S. May was despised as a management consultant, Booz, Allen and Hamilton were at the top of the pile, very well respected. And we were lucky from this standpoint, that Mr. Booz himself, the founder of the company, had a daughter going to the university at Stanford. And therefore, he always made their visits personally.

They had a young man out here for some time, a very good young man whose name slips me, but then Mr. Booz would come out and he personally would go over and study a certain problem. And, of course, was a top-notch man. He was probably the top-notch consultant in the whole country, and he kind of took a fatherly interest in our concern.

I remember I had him up to dinner and asked him to take my three boys into my den and have a discussion with them. He really tabbed them right on the achnozzle! [Laughter]

Morris: You wanted him to talk to them about what?

Cutter: Well, to, you know, to talk and advise and answer any questions they had and ask them questions he thought would be advisable. He did. He had this talk. And I remember afterwards, he ran down his analysis of the three boys and what their interests might be and all, and he was right on the nose. I say "right on the nose"--he was right because he agreed with me! [Laughter]

Morris: Your sons were then how old?

Cutter: Let's see --that perhaps was in 1940. Rob might have been in his teens, but the others would be less.

Morris: So, the Booz, Allen and Hamilton consultation went on in short periods of time over several years?

Cutter: Yes. Several years. That's right.

Morris: This earlier George S. May study looks like it was a very intensive thing.

Cutter: That's right. Yes.

Morris: Was there a team of people here?

Cutter: No. Mr. Henrikson was the whole thing. And this was another thing that I learned from that. That is when you are going to have a consultant come in, find out who the consultant is going to send and investigate him just as carefully as you would if you were going to hire him, because, as a general thing, it is only that man that really counts. Very rarely does the firm itself have much--you know, you're supposed to get a great deal of top-notch help from the top of the firm, but very rarely does that occur.

So, when we came to get the Booz, Allen and Hamilton, when the young man came, we investigated him very carefully and he was excellent. And, of course, Mr. Booz himself. You couldn't get better. [Laughter]

Morris: You couldn't do better than that. Did you have any personal contact with George S. May himself?

Cutter: None whatever. No. But Mr. Booz--when we'd be going back there, I'd often stop off and see him in Chicago, where he was based. And I remember at one time, he was also doing consultant work for the Johnson Wax Company in Racine, Wisconsin. And he had Dr. Winegarden and me go up there and spend three days with them to see how they worked, and he also wanted to have their folks have contact with us and our problems. He felt that each could help the other, which I think was very much worthwhile.

Morris: Did the Johnson's people come out here?

Cutter: No. None of them ever did. But we did go back there for the three days.

Morris: Now, what was Mr. Booz's thinking on this?

Cutter: Well, he thought that we would see how the different organization worked and see how their men functioned, what their organization was and what their problems were and all, and that they would get help from how we did things.

Morris: Was it your differences or your similarities that he was interested in?

- Cutter: Well, he felt that we were the smaller company which, in his experience, had greater depth of top management than any other company that he knew. And he did not feel this was true of Johnson Wax.
- Morris: At that point, were your companies about the same size?
- Cutter: No, they were definitely a larger company than we and, he felt, they had less depth in the top management team than we had as a small corporation. You see, there were the three brothers, and he thought very highly of Dr. Winegarden and of, at that time, Mr. Snow. Preston Snow was with us, and he thought very highly of him.
- Morris: In general, what was useful from the May study?
- Cutter: Mainly an experience with an outside consultant and learning that you should, in the use of a consultant, run a middle course between taking everything that the so-called expert said as gospel, and the other extreme of not accepting a single thing that they suggested.
- That went for Ed Booz too. We found we couldn't accept every one of his recommendations. On the other hand, he may have been right and we may have been wrong, but, nevertheless, there were times when we definitely did not accept his suggestions.
- Morris: Did the May study and, later, the Booz/Allen study stimulate thinking of your people here?
- Cutter: Oh, yes. No question but that it does that, to have somebody in from outside. And, of course, another advantage is that often an outsider will come in and tell you something that you've already known and just haven't gotten off the dime to take care of.
- Morris: That's a good point. There did seem to be a few organizational things.

Customer Information Materials

Morris: Last time, we were talking about your getting your feet under you in management as an executive, and we talked about some of the sales pieces that were gotten out in the late Twenties and early Thirties. You were going to tell me about these little blotters that look like they might have been directed toward physicians rather than ranchers.

Cutter: Oh, yes. Now, you remember, I was telling you about the design of the various pieces of literature. I had used the word "Cutter" as a corner piece and was rather proud of it. There's an example of that here in several of these booklets, like "The Treatment of Hay Fever" and "Your Child and Diphtheria." [Flips through booklets] I assume there are other booklets through here.

At that time, I was designing most of these, and this would be in the Twenties. Now this product, that particular thing, I didn't have anything to do with. [Looks at sales piece] That must have been somebody else, probably Dwight Wood. But this was the original Cutter piece, you see, and this other here. Dwight Wood and some advertising man developed this original-- what we call the Cutter bug, the Cutter trademark, which then had "Cutter Standard" on it.

Morris: Was it customary in those days to send out pieces like the little blotters?

Cutter: Yes. You see, we had many direct customers among physicians, and it would be something like this that they would get, you see, with their bill. They'd call that a stuffer. And it would go in with a bill, occasionally, like that one you saw, "Your Child and Diphtheria." That would be something, you see, very inexpensive, and he probably would have been offered more of these if he wanted to distribute them to his patients or leave them out in the waiting room.

Morris: I see. I came across one other thing here which may or may not be related, but it's entertaining. It's a little flyer that looked like it was prepared for an election campaign on an amendment number twenty-eight.

Cutter: Oh, yes. Now this was in the days of antivivisection, they called it. We didn't ever like that word, and we never spoke of it as anything but animal experimentation. There were many amendments on this at the time. They had to fight it in every legislature. I took many trips to Sacramento to speak before committees, often, as is true now, going and then never being called. [Laughter]

Cutter: But this, then, was a very, very popular cause of so-called antivivisection.

Morris: This would have been on an election ballot?

Cutter: Like the one that we have now, you know. This year's campaign has a lot of amendments on the ballot. This would probably be a constitutional amendment.

Morris: That's what it looks like. Would you have sent this out--?

Cutter: Perhaps with all of our bills to anybody in California. Now, here is one of my inserts [quotes from insert]: "If the package bears this seal [that is the Cutter standard seal] it will be so neatly gotten up, you'll take pride in opening it before your client. The container will be so convenient, its use will be a pleasure, and the contents will measure up to the Cutter standard, and there is none higher." I remember that well.

That would be a stuffer. That would definitely be a stuffer and it would be in the era between 1923 and probably 1929.

Morris: Yes. You have a gift for writing, I should say.

Cutter: I enjoy writing. [Looks through papers] Oh! This was for the druggist. Now, that would have been written during my brother Fred's era. We were, at that time, trying to make this poison oak protective treatment an over-the-counter item, but it never really got off the--what do they say?--got off the floor. And it's too bad it didn't because it's an excellent protective product. It still is, but it's gone out of style with today's physician. He really doesn't know anything about it and discounts it.

Poison oak itself is limited pretty much to a rather defined area in the Western market. For instance, you don't get poison oak in the Valley. You don't get it in Arizona, and only in the coast areas of Oregon and I don't remember whether it even gets up into Washington.

Morris: I have observed cases of it right there on the Oregon and California border.

Cutter: Oh, yes. In other words, it's a rather limited market. So, therefore, there's a rather limited interest in it and just no work has been done on it to speak of in recent years, even though I still think it's one of the best preventive items we have in the medical kit, if used properly.

Cutter: And it can be used properly by the patient. It's more likely to be used properly by a patient, following the directions that are enclosed in the package, than it is by a physician. The physician doesn't have time to give the definite directions of when you should increase the dose, when you should leave it the same and when you should decrease it.

Morris: Have you continued to produce this poison oak preventive?

Cutter: Yes. We still have it. I think I told you about the time that I'd taken two bottles of it when I was so sure that poison oak was strictly a contact disease and found out that I was wrong.

Morris: Oh, my! That seems to happen to a number of people.

We had talked a bit about the employees, and you said that the employees' association wasn't started until the Thirties, but I wondered when the employee activities began, things like the company picnics?

Cutter: Oh, those! The company picnics were actually more active in the era from 1907 to 1920 than they were thereafter. There were ranch rides and picnics and that sort of thing. It was always easier to do it with a smaller group than it is with a larger group.

Morris: That's true. Who organized them?

Cutter: Most of the early picnics were organized by Mr. Twining. At least, if he himself didn't organize them, he had a very large part in what transpired.

Morris: Then when did the picnics at the ranch start? I've seen pictures at the ranch in Briones.

Cutter: Well, we didn't have many of those. I think there were only one or two, if there were that many, general picnics, and then there were other picnics when we would have the salesman and they would go over there.

Morris: The Briones ranch was used by your family for recreation?

Cutter: No. You've got two different ranches. You have one ranch that's now under the Briones lake, which was a Cutter family ranch. The laboratories had nothing to do with that. On the other hand then, on the road out from El Sobrante, is the Cutter Laboratories ranch, which still exists. And that was a ranch where we wanted to pasture animals that we would be experimenting with.

Cutter: Or, in the tetanus production at that time, it was deemed desirable to give a horse a low dose of tetanus toxin--I don't remember whether it was toxoid or toxin, I imagine toxoid followed by toxin--and then let the animal rest for six months and then follow it by hyperimmunization. And the feeling was that those animals who had had an original dose of the toxoid gave a higher unitage antitoxin than did those where you just took a horse, any horse, and started him right off on a high dosage.

Morris: I'm glad we got that sorted out. We talked last time about your getting yourself established as executive of the company, and I wondered about what point did you feel that you really were comfortable as chief executive?

Cutter: I never felt myself comfortable. I talked with a good many chief executives, and I found that it's a universal feeling, particularly among the more successful chief executives, that they always are appalled by the responsibilities on their shoulders and doubt their ability to cope with it. They look around and see that it isn't just the employee that is looking to them and depending on them for proper decisions, but in back of each employee, there are usually from one to ten others in the family, you know.

It's a very great responsibility, and I don't think it's to be wondered that a man just says, "Gee whiz! Am I capable of living up to what these folks expect of me?" So, I could say that never came! [Laughter]

Morris: Then let me put my question this way: When you were familiar with your responsibilities and had learned to live with your sense of responsibility and maybe anxiety, what were your personal hopes and goals for what you might accomplish with the firm?

Cutter: Well, I think that my hopes and goals were that the firm, hopefully, yes, would grow, but more particularly, that the high esteem in which it had been held for so many years would never be tarnished. That was really my main feeling and, as a subsidiary feeling, that if that reputation were never tarnished, the firm would go on and live and grow. People like to deal with a firm in which they have confidence, and particularly in this field, where they are dealing with life-saving, and life-preserving preventives.

Introduction of Intravenous Solutions

Morris: Yes, I can see that. That kind of brings us to the intravenous solutions that I wanted to ask you about today. Was that a major change in the kind of product that you had been producing?

Cutter: Well, that's an interesting thing. At that time, the so-called ampule line was a very popular line. These were products for injection, usually chemicals. Oh, let's see. Among others, I think of one we had which was choline, which was a colloidal iron, and I've forgotten the salt of it. And then, there were glycerol phosphates and many other products, quite a long line of ampules.

Now, these originally were sealed ampules, but when we contemplated getting into them, we had been testing them in our biological work with the use of an ampule which had a rubber top with a diaphragm, which the physician would swab with an alcohol swab at the top and withdraw the fluid.

We called them Ambots, ampule bottles. That was our trade name--Ambot *. These were much handier. There was no danger of the physician cutting himself. And also, it was possible for several doses to be withdrawn from the same bottle, while maintaining a seal. It is very bad technique to leave an open ampule, for instance, and use it a week later.

So, we were in this ampule line. And among other products in it, was a 50 cc ampule of what was called glucose then and has since been officially termed dextrose, which means it's the dextrolevatory form of sugar, as opposed to levulose, which is the left-handed rotating.

So, then, these 50 and 100 cc Ambots* of so-called glucose were among our most successful ampule products. Most of the other ampules were diminishing in use, and we eventually discontinued them all. But out of that ampule line, the 50 cc and 100 cc glucose were the most popular.

And those were used to prepare, in the hospital, the so-called glucose solutions which, at that time, were used mainly under the skin. The term was hypodermoclysis, which is bad.
[Laughter]

Morris: I came across that and I wondered what it meant.

Cutter: Hypodermoclysis, which meant a very slow injection under the skin or intramuscularly. They didn't dare do the injections intravenously because the solutions in those days that they

Cutter: prepared in the hospital almost invariably had pyrogens which, when injected into the patient, meant that the patient immediately developed a fever and shook with the ague and there were just terrible reactions.

Morris: Is a pyrogen a natural occurrence in a sugar solution?

Cutter: It usually comes from bacterial contamination somewhere along the line. Improper washing or many different things can cause it, but there are the so-called pyrogenic bacteria which are usually the cause of it.

So, these hospitals were making this solution up for hypodermoclysis. So then, later, some of the hospitals, realizing how important it would be and what a great step ahead it would be if they could use them intravenously, went about and tried to develop techniques for producing these more carefully to avoid the pyrogens.

The fifty per cent dextrose was diluted, usually in a regular chemical flask of about a liter. And then they would inject that intravenously.

We were not the originators of the use of the laboratory prepared and tested dextrose. That was originated by a Dr. Don Baxter in Los Angeles. However, his was put out in a regular chemical flask with a very involved stopper arrangement with a metal holder. The glass was returned to him, and there was tremendous breakage and it was a very clumsy situation.

Interestingly enough, he himself realized how clumsy his thing was and we didn't know it. But each of us was then developing what later became and is now called the intravenous solution bottle or flask. Actually, it's a bottle which is made for us. We get most of ours from Owens Illinois Glass Company, and it's a special glass, but not a pyrex glass, which is tremendously expensive, of course.

Saftiflask* Developed

Morris: What's special about the glass?

Cutter: Well, it withstands most of the chemicals which are used for intravenous injections. We then developed this bottle. We put them out in 500 and 1,000 cc's. Saftiflask* was our trade name for them. And we used that "Safti" as a prefix for each of many trade names with reference to equipment and so forth used in connection with the IV containers and with, later, the transfusion equipment.

Cutter: Now there will be in the present Microscope a picture and a note from our original production of these original Safti-flasks*.

Morris: It was your idea to put the little flanges on the corners?

Cutter: Oh, yes. That was definitely my idea. [Laughter] I was very proud of that.

Morris: I can imagine. That must have meant having special molds made.

Cutter: Oh, yes. Practically all of our glass was made on special molds and had our name embossed somewhere on the bottle. And to this day, of course, we and all other manufacturers--there are not very many in this business, but those who are do have their names embossed on them and their special molds only for their use.

Morris: Why did you pick a glass company all the way back in Illinois?

Cutter: [Laughter] I didn't. They were right here in San Francisco at the time.

Morris: I see. It was the Owens Glass Company at that time?

Cutter: At that time, it was Owens Pacific. Owens Illinois had bought out the Pacific Glass Company and they called it the Owens Pacific Glass Company.

Morris: I see. So that you could actually go to their shops and work with them on producing your ideas.

Cutter: Oh, yes.

Morris: What was the idea of the flanges and, what developed?

Cutter: Well, I pointed that out in the article. Would you like to have it here on this record?

Morris: Yes, I would

Cutter: All right. Fine. The idea was that we did not, at that time, have a ball to invert the flask. You see, before injection, the flasks had to be inverted. But there were available then, of course, in all chemist's laboratories and in most of your hospital wards, so-called ring stands to hold inverted flasks. And your chemical flasks are all made so they will fit in one of those ring stands, either up or inverted. For instance, your chemical flasks have a spherical bottom part or they have a cone-shaped bottom part.



Cutter Laboratories first Intravenous Solutions Department, 1933

left, the bottle washing machine. The intravenous solution traveled from the stainless steel tanks behind
Kinney, first department supervisor, through a filter to the inverted Pyrex bottle, and was then fed through
rubber tube into a Saftiflask (a square cornered bottle specially designed by Robert Cutter to be easily inverted
metal ring for hospital and laboratory use.) Each bottle was finally visually checked for impurities.

Cutter: So, my thought was most bottles, of course, are cylindrical in shape, but they would slip right through a ring stand when they were inserted. But what I did was to design this bottle with projections at each corner, which would hold in a ring stand. Actually, the design of it was called a cylinder in a frustrated pyramid. Frustrated means cut off.

So, it was an interesting design. And I think I've said in the article that I remember right where the idea occurred. I'd been over at the Lane Library in San Francisco. That was the Stanford Library and one of the finest medical libraries anywhere. I not infrequently went over there, mostly to refer to something in their library in rather obscure journals.

So, when I came out--I always carried a pad of blank paper in the front seat of the car to jot down things and ideas and sketches and so forth. So, before I ever started up, I just stayed there parked after I left the laboratories and drew the first sketch of this inverted bottle, the cylinder in a cone bottle.

Morris: One question on the bail--is that a metal loop to hang over the stand?

Cutter: It's anything which allows the bottle to be inverted, hung up inverted. The term originally came from the handle on a bucket, which is called a bail.

Morris: So, you went ahead with the bottles that were flanged. How did they work out in process, in production and distribution?

Cutter: They were all right in production for small quantities when they were done by hand. However, we found that quite a few hospitals didn't have these ring stands available. So, our first solution was that we had a bail molded of pot metal. Unfortunately, we don't have one of those up here in the Old Timers Room. But it was simply a modified square to fit over the bottle with a bail from two sides of it.

So, the idea of that was that they would have two or three of these on each ward. Then later, the idea of sending a bail with each bottle was sent out. What we did was simply make two indentations in two sides of the bottom of the bottle and put a wire handle on that. That was all right, except it had a couple of minor difficulties.

Sometimes it would puncture the bottle, and if, in transportation or handling, it would jam against the bottle, why that would make a hole in the bottle. Dextrose is quite sticky and it was usually quite a mess. So, that didn't work out.

Cutter: Then my brother developed a hook design, and that is up in the Old Timers Room. That was my brother Fred's invention. He was a very ingenious chap.

Acceptance by Hospitals

Morris: Had the hospital people come to you, or had you become aware of this development in hospital technique yourself through meetings or journals?

Cutter: No, actually, it was Dr. Don Baxter's use down there in Pasadena of, literally, a chemical flask with a jerry-rigged stopper on it, and the fact that they were having much fewer reactions from this that--

Morris: Than in the hospital-made solutions?

Cutter: Than in the hospital-made solutions. You see, in a commercial laboratory you are making solutions in large lots and sterilizing them in very large lots with great, big sterilizers. Even then, we were using large sterilizers. We'd use them for processing our mediums or things of that kind, so our original intravenous solutions were sterilized right in the sterilizers which we had on hand and which were much larger than the sterilizers the hospitals had on hand.

We could make these in large lots and then we tested each lot for pyrogenic activity, as well as for sterility. Now the hospitals couldn't do this because they produced them in small lots and they just couldn't afford to do this. And all too many of them didn't think it was necessary.

So, what actually was happening in the hospitals was that the patients were the guinea pigs and they had many, many reactions.

Morris: Were you in contact with Dr. Baxter? Did you know him?

Cutter: No. I did not. I just knew of this. Actually, it was reported by our men. An interesting thing was that I asked about including an injection set with each bottle of solution, and our salesman who was down there at the time said in 1932, "Oh, they are not using that. It'll never go over." But I followed it very closely. I did go down and talk with the hospital people who were using it and found that they just had many, many fewer reactions than they had with their own sets.

Cutter: They had reactions because then they were washing and preparing and sterilizing their own injection equipment and using it over and over. They were having reactions from that, as well as from the solutions they prepared themselves.

I remember after we were in this for four, five, six, seven, eight, nine and ten years, we'd get reports: "Your solutions are causing reactions." So, obviously, the hospital people would much rather blame it on somebody else than they would blame it on their own preparation. Well, this is human nature to blame it on somebody else, so our solutions would often get blamed for reactions which were caused by their sets.

So, we sent advertising material. I remember I wrote a memorandum and sent it out to the pathologists--they were the ones who usually got this--and repeated it on numerous occasions. And I also kept after our salesmen that whenever there was a reaction reported, to have the hospital clip the rubber tubing, to clip it at the needle end and clip it at the flask end, and send the whole thing to us so that we could test it.

And if we got it reasonably soon, we'd take what was in the tube and inject that intravenously into rabbits and do the pyrogen test, and then inject what was in the solution. And if they had done this carefully and had not backed up any of the tubing solution back into the Saftiflask* solution, we could tell whether the problem had been in the preparation of the tubing or actually in the solution.

Morris: So the tubing would be provided by the hospitals at that point?

Cutter: Yes. We also supplied the tubing in the sets, but they were used over and over again by the hospitals. Now because of this, and considerably later, we first of all prepared rubber and glass disposable sets for one use. Then later, the plastic tubing came into use, which was much more economical. This was, of course, important when it was to only be used once.

Morris: So, you closed out the other lines of material in ampules and increased your production of the dextrose in solutions?

Cutter: That's right. Yes.

Morris: And is this what you refer to when you say that the Cutter Laboratories are no longer in biologicals?

Cutter: When we speak of biologicals, we're thinking of vaccines, serums and antitoxins.

Morris: So that these chemical solutions are a different--

Cutter: They're a different breed.

Morris: Yes. Once you got the solutions line established, that's the direction that the firm concentrated on from then on?

Cutter: Well, you see, I got the first bottle out in 1934, and then the business grew very rapidly. It was filling a very definite need. But hospitals were slow to give up the preparation of their own material because, of course, it could be done much more cheaply, certainly by their method of costing, because they didn't charge any labor to it. Those folks were there anyway, so they might as well make hospital solutions. They didn't charge in any of the breakage of the materials. We got some of the weirdest costing when our salesmen were trying to sell hospitals on our solutions. They'd ask, "Now would you figure out for me what you figure your costs are?" And very often it would come back and they'd just figure, well, what was the cost of the dry dextrose? And that was, they figured, their total cost.

Of course, we had costs that they didn't have because we had to very carefully test each lot and, as I said before, you must remember that most of the hospitals didn't have any injection of animals. So, they were using their patients as the guinea pigs. Even in those days, it was expensive to keep guinea pigs and rabbits for your biology tests. It was very expensive to keep them.

Morris: The other factor in this would be the water, wouldn't it, when you make the solutions?

Cutter: That's right. It'd have to be pyrogen-free. That meant distilled water. And yes, you've put your finger on a definite point there that at times the water that they used was not properly distilled.

Original Production Process

Morris: What did you do here about the water?

Cutter: Well, we tested our water right along. Before it went into the bottles, we tested it for pyrogens. And we got an occasional lot that had pyrogen in that we'd have to discard, particularly in the early days. And it was quite a detective problem to find out, well, where had we gotten our pyrogen? But we had to find out because we couldn't send out a batch of solutions that would cause intravenous reactions.

Morris: Did you produce your own distilled water?

Cutter: Oh, yes. We had our own stills.

Morris: In this connection in general, what do you do with your waste water supplies? You use a fair amount of water in all the processes, don't you?

Cutter: Yes. Well, some of the water is used over again and some of it can't be used over again. We never discharge any water that would be contaminated, but it would just go into the sewer.

Morris: And then the regular East Bay sewage treatment processes would--

Cutter: Well, who's going to inject sewage intravenously? [Laughter] No, that water that would go in there would be, of course, much cleaner than the water that would be discharged into any household sewer.

On the distilled water, you only distill what you're going to need. So, there is really practically no wastage. But if there were, whatever little would be left unused wouldn't be worthwhile to do anything with, it would simply be turned into the sewer.

Morris: You've gotten me thinking about sterility and this kind of thing. In this lovely picture of your first production line, the bottles look like they're being filled by hand on this first production line. Is this a potential source of contamination? How did you cope with that?

Cutter: Well, you see, this wasn't a sterile process. This was a clean process, and the bottles then were all sterilized after they'd been filled and capped and sealed.

Now, anything along here--if this wash water were contaminated with pyrogens, that pyrogen would carry over on that bottle and be carried along into the sterility process. The sterility process does not eliminate pyrogen. It eliminates living bacteria, but it does not eliminate pyrogens.

So, if this water in here, this final rinse, if it had pyrogen in it or if it hadn't been properly rinsed or if that cycle had been missed, your lot would then be pyrogenic. So, the sterilizing wouldn't stop it.

Morris: Was this a part of the process that you made improvements in over the years?

Cutter: Oh, this? Oh, goodness [laughter]. We're having this picture framed with a little note here and sending it to our plants at

Cutter: Ogden and Chattanooga because they just won't believe it! They won't believe it, because nowadays these bottles go through the whole process, you might say, untouched by human hands. It's all machinery--everything! The washing is machine. The filling is by machine. Everything is by machine! Bottles go along on conveyors.

Marketing

Morris: Did this addition of intravenous solutions enable you to move out into new market areas?

Cutter: Very definitely. It was the thing that allowed us to break into the Midwestern and the Eastern markets.

Morris: How did you go about doing that?

Cutter: Well, actually, we did it through our sales force appointing distributors. There were certain wholesale surgical supply dealers, and we would try to find the best one in each territory and give him an exclusive distribution of our flasks so that he knew he wasn't going to have to fight every other solution distributor there. And in that way, we multiplied our sales force tremendously because each of these hospital supply companies had salesmen traveling in their local area.

At first, their salesmen would much rather sell the hospital bed at a big price or a hospital operating room table or a light, which gave them a big, immediate commission. But then, they realized that while each individual bottle gave them very, very little commission, once they'd sold that hospital, that was coming in every week and every day. It was like the royalties on a book. The original payment wasn't so good, but what came in over the years was.

So, once they got the idea that they were selling the razor blade rather than the razor, they took to it very handsomely and really went out and got customers.

Morris: Did you rely heavily on the Illinois office to help you make these contacts?

Cutter: That was right, yes. Originally, that was the spark plug of it--Chicago.

Morris: Who particularly was it in that area?

Cutter: A chap by the name of Preston Snow.

Morris: He went on to play quite a part in the development of the labs, didn't he?

Cutter: That's right. He came back, we brought him into Berkeley and he was here for, I don't know, ten years or so.

Morris: Mr. Snow was in sales in the Illinois office, and he came back here in sales?

Cutter: Yes. He was back here. And then, he got into other managerial work. He was very instrumental in the original plasma work and he was back with my brother in Washington part of the time when they were working on government contracts.

Morris: I read some of his memos to salesmen and some of his reports on products. He sounds like he was quite a remarkable man.

Cutter: A very dynamic person, yes.

Morris: What was his background?

Cutter: He was graduated from Purdue, but in just what, I don't know. It was certainly not technical. He was a football player, a very big, handsome guy, very dynamic and a very fine personal salesman. He was just a very able man.

Morris: Did World War II have any noticeable effect on the solutions line?

Cutter: Well, they were used by the armed forces, of course, and we supplied a number of solutions and a number of sets to the armed forces.

Morris: I was wondering if use by the military led to any improvements or different applications?

Cutter: Not particularly, no. Now, I'm talking about solutions, intravenous solutions. I'm not talking about plasma or--

1948 Dextrose Solution Recall

Morris: I know. I wanted to follow the solutions story through and then go back to some of the other things that were done in connection with the military. I came across a whole batch of messages to all the distributors on the solutions; you ran into trouble in 1948.

- Cutter: That's right: There was a recall at that time. We never actually did pinpoint the cause of the necessity of that recall. It was Dr. Winegarden who was doing most of the investigative work and he, I think, was ultimately convinced that it was a matter of sabotage.
- Morris: I came across this reference in some correspondence. In what form would this have been?
- Cutter: Well, of having solutions distributed which had never gone through the sterilizer.
- Morris: How could that happen?
- Cutter: Well, at that time, we hadn't contemplated the possibility of such a thing. Now, we have these trucks before sterilization that are in a definite hold position and in a different place and all than the ones which have been sterilized. But in those days, there was a card on them when it was sterilized and a card "not sterilized" and so forth, because that possibility hadn't been contemplated.
- Morris: In other words, his thinking was that it was sabotage internally. It was somebody in your employ.
- Cutter: Internal sabotage. You see, in 1947, we had had a strike, the first strike in the history of the laboratories. And that generated a feeling--you know, that there was a difference between management and labor--which had never existed before. And we had definite sabotage in some of our other places at the time of the strike, when the strike was called, which we knew about.
- But this, you see, was later. The strike was in '47 and this was '48.
- Morris: It was August, '48--just about a year after the strike.
- Cutter: It could have been related. Whatever it was, we never did know.
- Morris: Could a shipment of solutions that was deliberately kept from going through the sterilizing process have been shipped out during 1947 and not have been used until 1948?
- Cutter: No, because we would know the lot numbers, you see, and know when it was produced.
- Morris: There were also comments from some of the men in the field that they felt that this was being publicized out of proportion to the size of the danger.

Cutter: Yes. Well, you see, that was one of the very, very early recalls. And as I recall, we instituted it ourselves. We found out and instituted it, although I may be wrong in that. That's out of memory. But it was picked up by the newspapers and headlined. Now, of course, recalls of automobiles and everything else are a dime a dozen. If they even get into the business section of the newspaper, it's very unusual.

Morris: Was there any sense that either other manufacturers or investigators for the government might be building this up to their advantage?

Cutter: Well, I think that there were cases where the local inspectors--you see, the FDA has local offices and from these offices are local inspectors, and they were involved in this recall. I think there were places where they were--what s the word--over-

Morris: Zealous?

Cutter: Overzealous. That's the word. I'm sure that was so. They'd go out and pick up other products. Any product that had a Cutter label, they'd pick up.

Morris: Oh, dear. Were you having difficulties with the Food and Drug Administration at that point?

Cutter: Oh, we never really had any difficulties with them. Wherever there has been any question of trouble, we believed--well, as I told you, we want our reputation to stand high, and we'd rather do anything than to have bad products get out. And if there was any possibility--we have, as you know, right now a possible recall among our irrigating solutions. It's not because the solutions themselves were contaminated, but because there was some contamination under the screw threads, not in the solution! But that's right now. And I'll bet you haven't heard of that unless you heard of it down here!

Morris: I haven't and I hadn't heard of it down here. As you say, occasionally when you read the business pages, you see a two- or three-inch article saying that some manufacturer has recalled something or that a government agency has requested this. As you say, it's a very small piece. There were hearings in Washington at the time, in 1948?

Cutter: I presume there were.

Morris: Arthur Beckley was on the receiving end of a steady stream of telegrams. Was he often in Washington on company business? Did he just happen to be there?

Cutter: Yes. He was there quite a bit on company business.

Morris: And his position was--?

Cutter: Well, his position was, I believe, vice president for personnel. But his duties were beyond that. He was very much tied up with the legislative lobbying and that sort of thing, here in the state and, to a certain extent, national.

Morris: In other words, representing Cutter's interests in the legislature?

Cutter: Yes.

Morris: Would he have given advice from Washington back here to you and your brothers as to how to cope or what to do?

Cutter: Yes. His advice would be mainly reporting back to us what the situation was with reference to the government, and asking: "Now what do I do?"

Morris: If you recalled all of your dextrose solutions, what did your customers do?

Cutter: Well, at that time, the Baxter Laboratories sold to us the solutions which we needed and allowed us to ship their solutions to our customers.

Morris: Did these go out with the Baxter label on them?

Cutter: The Baxter label. Right.

Morris: How did you arrange that? Did you go to Baxter?

Cutter: We went to Baxter. Well, you see, this was a different Baxter Laboratory than Don Baxter. Don Baxter sold his ideas and the use of his name and his bottles in all but the eleven western states to the Baxter Laboratories, now called Travenal Laboratories.

The head of that laboratory, the man who bought the thing, was a Dr. Falk, who was somewhere in Wyoming or Montana or Idaho or one of those states. He was a very shrewd businessman. He bought that and he had at the head of it a Mr. William Graham, and I had more or less sponsored Mr. Graham's entry into the American Pharmaceutical Manufacturers Association. We'd been very friendly. I was very fond of him.

Cutter: So this was really a very friendly gesture on their part, to allow us to supply our customers with their bottles rather than their shipping their bottles to our customers.

Morris: Yes. It's a very interesting anecdote, particularly when the image is of very tough competition between pharmaceutical manufacturers.

Cutter: Right. You bet there's tough competition!

Morris: But competition is suspended when somebody is in a pickle?

Cutter: Well, I wouldn't say it was suspended, but one lends a helping hand. For instance, you're familiar with the Abbott situation last year where we licensed them on our set-up and sent our men to help.

Morris: Did the dextrose crisis in 1948 produce any new decisions by Cutter management? In other words, did it bring about any changes in the way you did things?

[The tape was changed at this point. While the machine was off, Dr. Cutter indicated that no major changes occurred. The series of telegrams mentioned refers to considerable attention having been given to sterilizing and inspection procedures. Ed.]

Morris: Going back to the introduction of the intravenous solutions, I found this wheel chart on solutions, and this pamphlet, put out about 1938. The pamphlet seems to be quite a complete survey of the professional literature on the use of the solutions. I wondered if this was because many physicians were not familiar with the use of the intravenous therapies?

Cutter: This is quite right. There were many, many physicians who did not understand the intravenous use of dextrose therapy. It was relatively new, you see. I mentioned the hypodermoclysis a while back, and that had been used up until the early Thirties, and it was only then that they started to use intravenous therapy and had these tremendous reactions.

And even much later--goodness! I think the University of California, in their hospital, used their own hospital-prepared solutions within the last ten years. The excuse was that they should train their folks who were taking the course in pharmacy in how to make these solutions. However, they later realized that it was a great mistake to teach them how to make their own solutions because it was causing great damage in these reactions they would have.

Now I think, with reference to this, the idea of the wheel chart was originally Fred's, and I'm sure this continued

Cutter: to be Fred's. And then the material itself--just how much and what, I don't recall, but I do remember contributing a great deal to this.

Morris: One of the references is to an article of yours that was in the Journal of the American Medical Association, on the general topic of intravenous therapy, rather than on any of the specific ailments.

Cutter: In 1936, I think I reported on the difference in solution type called for in one area as compared to another; here again, an indication of a rather general lack of knowledge in what was the proper thing to use. This was just in its infancy then, you see.

Morris: One other thing that turned up is a file of letters that you wrote in 1948 to the heads of other pharmaceutical houses asking them for advice or suggestions on how they had handled a similar kind of crisis in regard to one of their solutions.

Cutter: I'd forgotten it! [Laughter]

Morris: You did this two or three times, and the files are always extremely interesting, partly because of the number of people who take the time to answer you in some detail. You tend to details with great competence, and after you've gotten the situation solved, you seem to forget all those details and go on to the next matter needing your attention. [Laughter]

There was a letter from the head of Winthrop Stearns, Dr. Klumpp. His company had had trouble with their Castoria. Is that Fletcher's Castoria of national fame?

Cutter: Right.

Morris: And his comment was that such publicity can eventually help the overall sales and reputation of the firm. I wondered if you thought that particular observation was a valid one?

Cutter: Well, I feel that in handling any problem like that, proper handling does increase the respect of the medical and allied professions for a company. I think that if they have told the truth and the whole truth and nothing but the truth, even if they don't know what the truth is, if they said, "We don't know what it is," why I think people respect them rather than say, "Well, the heck with them! They had trouble and I'm not going to use their stuff!"

Morris: He also made another comment. He supported this idea that there was excessive zeal on the part of some public agency

Morris: representatives, and said that there was a political aspect, that one should become well acquainted with the local federal attorneys in one's own area. I wondered if this was something that you already had done through Mr. Beckley?

Cutter: Well, yes. Art Beckley kept very close contact with the attorneys and with the local Food and Drug administrator.

Morris: Here in the Bay Area?

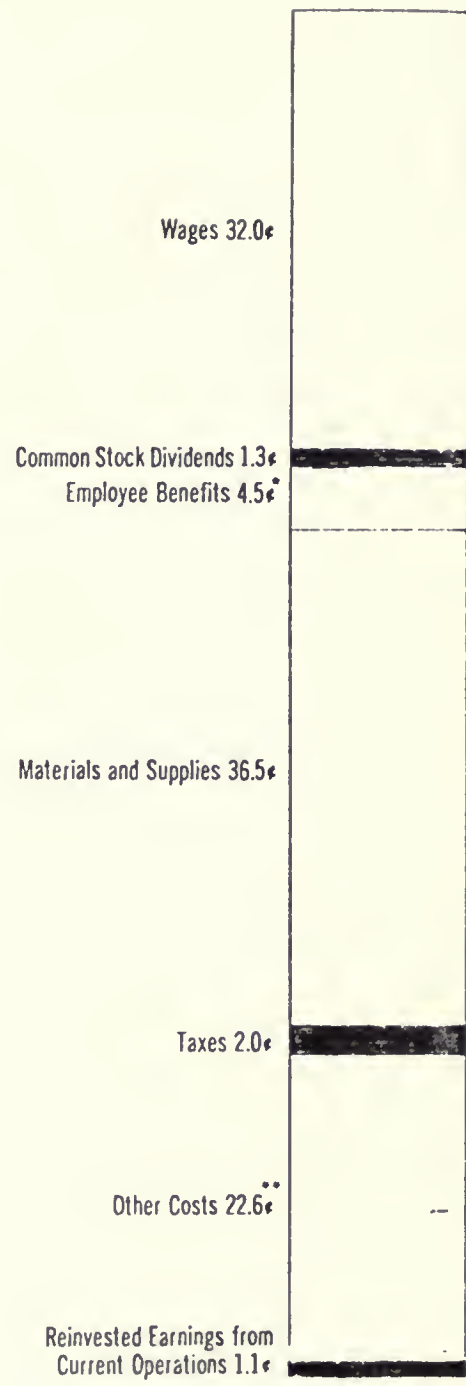
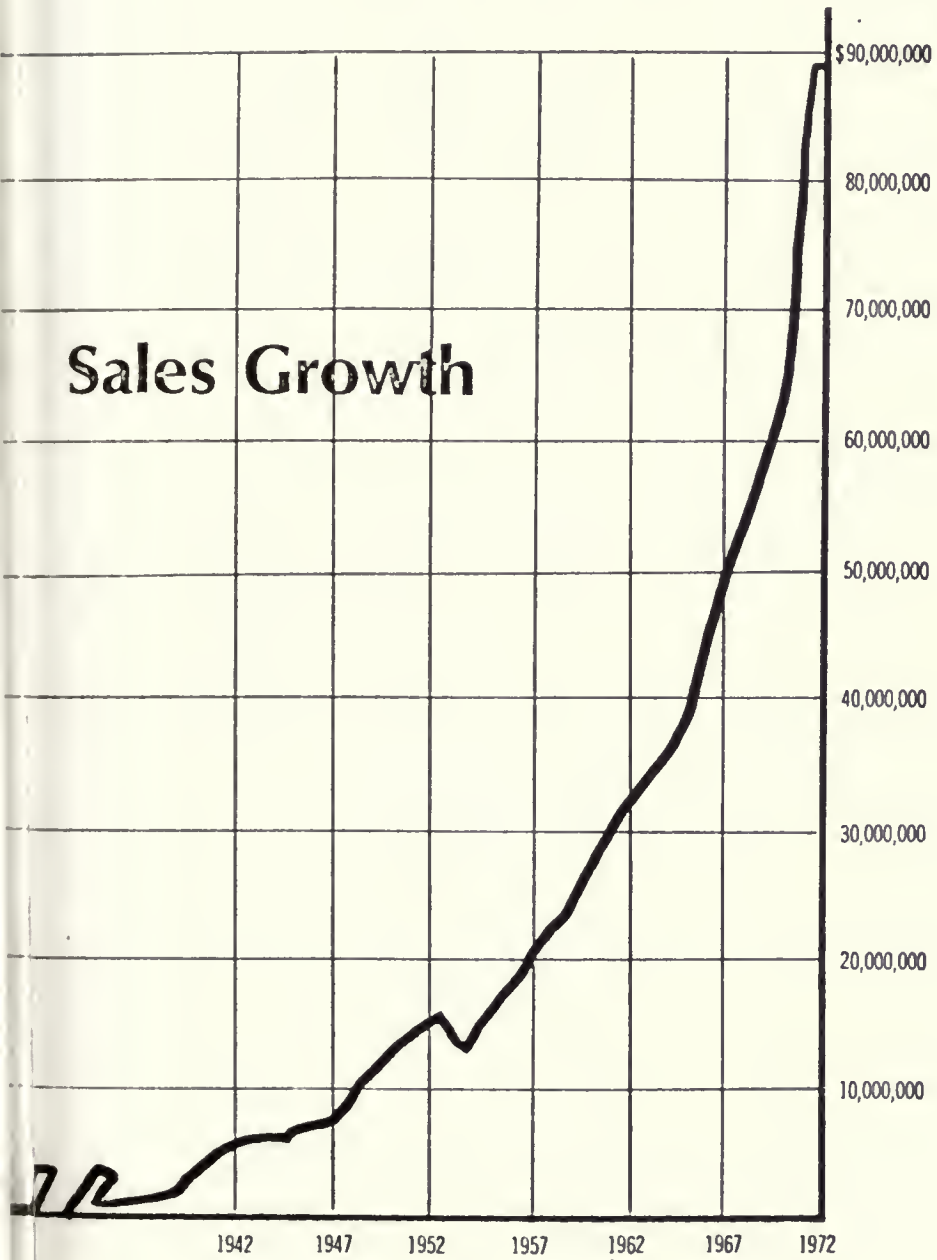
Cutter: Yes. In San Francisco. He administered the entire Western section. Just what that was, I don't remember. But it usually includes Washington, Oregon, California, Nevada, Arizona, New Mexico, Colorado and so forth.



5. BECOMING A LEADING NATIONAL CORPORATION

From Cutter Laboratories 1972 Annual Report

Sales Growth



*Retirement Plan, Group Life and Health Insurance, State Unemployment Insurance, Social Security

**Interest, Insurance, Depreciation, Legal Fees, Utilities, Advertising, Traveling Expenses, Freight, etc.

Sales Growth

Morris: Did the dextrose problem have any noticeable effects on your overall sales for 1948 and 1949?

Cutter: Our sales then went like this. [Refers to chart] 1945 was \$6,700,000. I'm giving these roughly. In '46, \$7,100,000. '47: \$7,800,000. '48: \$7,900,000. '49: \$7,800,000. '50: \$9,000,000. '51: \$10,100,000. So, it certainly had no last-ing--

Morris: Very minor.

Cutter: Our first ten million dollar year was in 1951. And then the next year, you see, it was the same. We didn't make any gain in 1952. And then, in 1953, we went to \$10,400,000. So, you couldn't say there that this slight drop in the year after had anything whatsoever to do--

Morris: While we're on sales, I have a note that it was in 1939 that sales first went over a million dollars. Was that a day for celebration?

Cutter: It sure was! 1939 was the first million.

Morris: That would have been primarily because of the--?

Cutter: That was the encephalomyelitis vaccine.

Morris: Was that a human or a veterinary product?

Cutter: That was a veterinary product.

Morris: This was something the State Department of Public Health had been working on over the years, as I recall. Were their people a help to you?

Cutter: Encephalomyelitis vaccine? Yes, we cooperated. Yes, they were. Definitely.

Then we went to the first two million dollars in a great big hurry. That came in 1942. We went almost to three that year; we went to \$2,900,000.

Morris: Did the war have that quick an impact on your sales?

Cutter: It had a very definite effect. In other words, we got into plasma and the IV solutions increased, both military and our general sales of them. And we produced plague vaccine. I'm giving now this war period here.

We went from \$1,700,000 before the war to, at the end of it, \$6,600,000. That was as they put it in here [refers to chart] plasma, intravenous solutions, plague vaccine, blood fractions, such as albumin, and penicillin.

Morris: That's fantastic!

Cutter: Now then, we were very much afraid at that time that we might return to what had been our pre-war situation of around two million dollars. And we laid rather elaborate plans at that time of just what we would do if our volume sank to anything like our pre-war level. At the same time, we made other plans to take care of things if our sales should continue at or greatly exceed what they had been during the war. We never had to go to any but the latter, you see, because actually they climbed right steadily on up.

Morris: This I noticed in looking through the figures. I wondered how you account for the fact that the demand was still there, not only at the same level as wartime, but that it kept increasing?

Cutter: Well, we were selling more in the domestic and foreign market--acquisitions came mainly later than that. But that was the main thing. We had just put on more salesmen and we got bigger advertising and we sold more.

Morris: How much of the dollar increase was inflation?

Cutter: I don't know. I can't answer that question offhand.

Morris: Well, I'm not sure that it's germane.

Cutter: Obviously that would be a factor in the increase.

Morris: It would, except that a large quantity of the sales were in products that you had not made in 1939.

Cutter: That's right.

Beginning of Blood Processing: 1942

Morris: And once their use had been proven--the plasma products, for instance--once their use was proven by the military, there was a ready-made civilian demand at the same level?

Cutter: Well, there's another factor, too, there. During the war, there had been, I believe and I'm quoting from memory, about eleven producers of plasma fractions. And of those, we were the only ones who made the decision that we were going to continue in commercial production of plasma fractions. All the others got out of the business at that time. And it was only later when they saw that we were doing so well in it that they came back in.

Morris: Was it the thinking of the other laboratories that there would not be the demand for the plasma?

Cutter: They thought that when you'd take the military out of it, the demand for these products among the civilian medical profession would not be sufficient to maintain the very expensive process of round-the-clock preparation. And getting the commercial blood, you see, is a very important problem of supply, a very, very difficult problem.

Morris: That's one I'd like to take up.

Cutter: You should get into that with John Hink.

Morris: John Hink. Is he part of the Hink retailing family?

Cutter: Well, distantly.

Morris: What influenced your decision to stay in blood production?

Cutter: I think very probably it was the fact that I am a physician that led to that decision, because I felt that we were just on the threshold of therapeutic and preventive products which could come from plasma fractions. And more than that which could come from the cells. As we were doing it at that time, we and everybody else were, for the most part, tossing the red cells down the sink.

Cutter: Now when we do it, we return the red cells to the donors. But then we were throwing them away.

Morris: You return the red cells to the donors?

Cutter: You've come across the word "plasma phoresis"; that means that you bleed the donor and, while he's still on the table, separate his red cells and white cells from the liquid part of the blood, and return to him his red cells and white cells.

Morris: In the other arm?

Cutter: No. In the same arm that you're bleeding him. You could do it in the other arm. We do this in our donor centers.

Morris: Let's go back to the beginning on Cutter's involvement in blood processing. I came across a mention of a Dr. Hyland in Los Angeles.

Cutter: Dr. Hyland. Yes, that's right.

Morris: The reference I had sounded as if he had been doing research on human blood processing.

Cutter: He had been making normal human plasma liquid, and doing this commercially. Now whether he had been doing any of it dried, I don't know. But anyway, he had been doing the liquid anyway, and for a time we had him make our plasma for us.

Morris: This would have been in 1940? In other words, were you doing any research--?

Cutter: This was before the war. No, actually, we didn't get into the human plasma. This was one of the war babies. They came around and wanted us to be in it because we were here in California, and they needed all the donors they could get. They needed a donor center in San Francisco and Los Angeles and as far away as Portland and Salt Lake.

So, they came to us and asked us to get into this. It was at that time that we went into dried plasma.

Morris: The first process was a liquid plasma?

Cutter: Hyland's was originally a liquid. Now, I don't think that he'd gotten into drying of plasma at that time.

Morris: Did you do any liquid processing yourself? Was that shipped at all to the war zones?

Cutter: No. They never used the liquid. They used the dried right from the start.

Morris: How did the Red Cross get involved?

Cutter: The Red Cross was asked by the armed services to start up a program of supplying the human bleedings to the various laboratories for processing into dried plasma. They took on that contract.

Mossi: And this was before the United States was involved in the Pacific theatre?

Cutter: I think it was. Dates I don't remember well. You would probably get that from what you'd read.

Morris: What I find upstairs is a very complete report that Preston Snow wrote in early '43. It expresses very politely some indignation with some things. His recollection was that the first contact that Cutter Labs had officially was a request to bid in October of '41, which would be two months before the United States was involved in the war directly. His concern was that, through other sources, you were aware that other laboratories had been visited by army and navy people to develop understandings about how to proceed, but that nobody from the army or navy came to Cutter until May of '42, six or eight months afterwards.

I wonder if one of the considerations was the fact that there were likely to be hostilities in the Pacific, and that, therefore, West Coast processing was needed.

Cutter: Well, I don't know about the Pacific. I know that they needed West Coast processing out here of the blood that would be bled here by the Red Cross, because, you see, we've got some very important cities in this area. And it was mainly the cities, of course, that they were going to have to depend on.

Morris: Was it all volunteer donors?

Cutter: All volunteer. Yes. Now, when we got into it later for commercial production, of course, that was all paid donors.

Morris: And that would have started up right after the war?

Cutter: Maybe even during the war. I just can't tell you when it was.

Morris: That became an issue also in the '47 labor controversy.

Cutter: Oh, I'd forgotten that. I'd love to see Pres Snow's report. Could you get it here?

Morris: I will bring it down. He's done a marvelous job of describing putting together a major production facility under wartime conditions and the ingenuity of people here in the plant in

- Morris: making it work. The primary problem seemed to be that the only equipment that would work were steam ejectors and boilers with a capacity much larger than the orders you had received from the government. These were things that other firms had ordered, but couldn't use because of wartime conditions.
- Cutter: I know we got our steam ejector from Hormel. They'd ordered it and I don't know why they couldn't use it, but we bought it from them, just as we bought the water cooler. It was from an alcohol plant in the Midwest. It was definitely a used one and it was taken down board by board, each board numbered, and it was put up right out here in this cemented area right outside my office, board by numbered board.
- Morris: Would this have been your sales force that scrounged around different parts of the country to find these pieces?
- Cutter: I think, actually, that Pres Snow was one of the main bird dogs for that sort of stuff. He was very good at that type of thing. He was like a bulldog. He'd get his teeth into it! [Laughter]
- Morris: And the alternative to getting equipment that was much larger in capacity than you wanted was to wait six months for new equipment to be built?
- Cutter: Yes. And not being sure then that you'd get it. For instance, later in our blood fraction work, when we were under contract to do that, we'd have equipment ordered and all of a sudden, we'd be advised that the Manhattan Project had bumped our order and we'd have to order other equipment. Of course, the Manhattan Project turned out to be the atom bomb.
- Morris: Yes. Which had the top priority.
- Cutter: Well, our blood fractions were right up there next to it, as far as I remember. Ask Ted about it, but I think they were the only one who could bump us on priorities. At least nobody else, as I remember, ever bumped us but them.
- Morris: Now is this a separate order of priorities than the actual guns and ammunition?
- Cutter: Well, guns and ammunition wouldn't need the equipment that we would need. They wouldn't need a sterilizer. They wouldn't use a centrifuge. They wouldn't need a stainless steel tank, a covered, jacketed, stainless steel tank. They wouldn't need compressors or heat exchangers or that sort of thing. The things we needed would be more in things required for laboratory use.
- Morris: And you were under a security program?

Cutter: Yes. Somewhere, I think you'll find my original badge that I had to wear as I came into the plant. Each one of us had a number. I had number one! [Laughter]

Morris: That's nice!

Cutter: They were very kind to me.

Morris: Was this because it was a new process?

Cutter: Well, not only a new process, but also worry about sabotage. Sabotage then was a very great worry of the army.

Morris: Was there any evidence of it?

Cutter: I don't remember any of it. Ask Ted** Now again, he's the guy you should ask on that.

Morris: While you were putting together this tremendously expanded processing plant, was there time or personnel to continue research?

Cutter: Yes, we did. We did have research and we did continue it, but the research and production were closer together. Sometimes production was doing research and research was doing pilot plant work. Occasionally, we'd even have to reach up and grab them to come on down and do actual production work.

Now, very fortunately, this building that you see over here was vacant.

Morris: To the east of us?

Acquiring Additional Plant Facilities

Cutter: Yes. This office building, that chemical building--all this was the Byron Jackson pump parts property. They had abandoned it because of labor troubles. Oh, I don't remember which year, but anyway, it was lying vacant for several years. But we needed more office space in 1940 and they were asking three hundred thousand dollars for this plot.

As I recall, I had made an offer of seventy-five thousand dollars on the whole shebang to the real estate dealer here, and heard nothing further from it. Then, I looked up the president of Byron Jackson in one of the reference books, and wrote a personal letter to him and said I was rather surprised not to have the courtesy of an answer to a firm offer for the real estate.

**See interviews with E.A. Cutter, Jr., Cutter Laboratories, 1897-1972: A Dual Trust, Volume II, 1975.

Cutter: For some reason, tax or otherwise, they had a real reason to get rid of this property at any cost. So, they immediately wrote to me and apologized and said they had never received our offer. The real estate man had thought it was so ridiculous that he had never transmitted it to them.

I had in mind just doing some dickering around here, perhaps to get a little better price on the office alone.

Morris: Yes. There's a good amount of negotiating room between those two prices. [Laughter]

Cutter: Yes. Anyway, the upshot of it was, as I remember, they took it at my offered price, or very close to it. I think it was at my offered price.

There were a lot of old papers in their vault and I went through them. I remember finding that the fire extinguisher provisions throughout the building had alone cost more than the total amount that we paid for the entire buildings and land.

Morris: Oh, my! This would be the sprinkler system?

Cutter: Yes. They called it Cutter's Folly. [Laughter] Here I had these tremendous buildings and what do you do with them? Well, they were a godsend to us, of course, when the war came along and we needed space. Our dextrose department grew, so that went in here now where you see them doing the disposable equipment line for our donor bags. That was our second dextrose department--dextrose and intravenous solutions department. We used part of it for warehouse space which we needed terribly, and it was just a godsend to us.

Morris: Is that where you put the blood processing?

Cutter: First we started over there, and then we moved it over here on the upper floor with the plasma processing.

Morris: It was when your blood processing expanded that you put in the new equipment?

Cutter: Yes. That's right.

Morris: The description in Mr. Snow's report says that this was a freeze-drying process; there was refrigeration equipment, too.

Cutter: That's right.

Morris: Is that similar to what we now have on the market as freeze-dried coffee and camping food?

Cutter: It's the same process.

Morris: Who had developed that technique?

Cutter: Goodness! That had been developed years prior. I remember in the Twenties, or not later than the Thirties, when I was looking for things to invest what tiny little bits I had in, I didn't buy it, but I considered the Bird's Eye freeze-dried food company.

Morris: I think of the frozen peas, which is what I associate with Mr. Bird's Eye, as a moist process.

Cutter: Well, right. Bird's Eye was moist. You're quite right on that. But it was not a new, untried process used only for this. It had been used earlier than that.

Morris: Somebody mentioned Dr. Karl Meyer having worked on that.

Cutter: Karl Meyer came in mainly in the plague vaccine.

Morris: Not the freeze-drying? Was this a new plague vaccine?

Cutter: The plague vaccine? You'd better get that separately because that's an entirely new story and that's one that Ted could give you better than I could.

Morris: All right. What impressed me was that within a year and a few months after you started the production of the original dried plasma, you had already begun the production of albumin, using some of the same equipment, so that the production of albumin was introduced right away to take advantage of some of that surplus production capacity.

Cutter: Now say that over again and slowly! [Laughter] Was this from Pres Snow's report?

Morris: These are my notes from Pres' report.

Cutter: Well, he was close to it, and whatever he said then would be much more accurate than what I'd remember now.

Morris: His first concern was that because you had to work with whatever equipment you could get your hands on, the production capacity was much larger than the government's orders for the dried plasma.

Cutter: Right.

Morris: And then, in this report that he prepared in March of 1943, you'd already begun production of albumin.

Cutter: I didn't realize it was that early, you see.

Morris: Yes. I was surprised. Albumin sounds like a whole new--

Cutter: No, I knew it was during the war, during the later stages of the war. But I hadn't realized it was as early as '43. I thought it was more like '44.

Morris: Well, it was a small proportion. Of sixteen thousand bloods received in '43, albumin would have accounted for about two thousand units and the rest would have been the plasmas.

Cutter: I'm surprised the ratio's that high. I wonder if part of the reason for it is that we didn't get into albumin until late in '43.

Morris: This may have been the very first batch. What I'm responding to is the way you managed to use all your productive capacity within short order.

Last week, we were talking about the wartime blood processing that Cutter did. I wondered if you'd had a chance to read Pres Snow's report?

Cutter: Well, I had every good intention and I paved hell with my intentions to read that! [Laughter] But I just have had too many other things that have put themselves ahead of it.

Morris: Well, I have a couple of other questions that you may recall more about than Mr. Snow mentioned. He said that the majority of the contracts were with the navy, which I thought was interesting. Do you have any recollection of that?

Diversification: Processing Albumin and Fibrin Foam

Cutter: No. Frankly, I don't. My memory would have been that for the plasma contract, they would have been for army and navy. Now, I know that the albumin contracts were a navy project.

Morris: I see. How did that come about?

Cutter: Well, I think that Dr. Newhouser, who was the navy expert on it, felt more strongly than did Dr. Kendrick, who was the army man, that there was a very good, logical use for the albumin.

Morris: That's used for treatment of shock?

Cutter: Yes.

- Morris: And is this something that the navy had been working on?
- Cutter: Navy and other outside people working in blood fractions, such as Cohn up at Harvard.
- Morris: And then, there was also fibrin foam.
- Cutter: That came out of the work with the navy. Fibrin foam was an excellent product, but it had the same difficulty that we now have with many of the other anti-clotting fractions, and that is that there was no process for effectively avoiding hepatitis. So, in many cases where the fibrin foam was used, the patients developed hepatitis. So, this absolutely killed the product, of course.
- Morris: So fibrin foam is no longer used?
- Cutter: No longer used. No. But if some way of effectively avoiding hepatitis were found, I think it would probably come back.
- Morris: And the processing, the chilling, did not do a thing about the hepatitis?
- Cutter: No.
- Morris: I've been aware of that as a hazard in just plain transfusions.
- Cutter: Oh, yes. Well, it's much more of a hazard in some of your other products where it has to be made from multiple donations of blood. In a transfusion, if the donee only gets from one donor, there's only the one chance that that has hepatitis. But, if the donors have been, let's say, a thousand donors, there's a thousand times the chance that the material will carry the hepatitis virus.
- Morris: When you were doing the plasma drying and making albumin and the fibrin foam, you'd be putting bloods from any number of people together.
- Cutter: Many. Yes. It was pooled. And, of course, that was what killed plasma as such. The liquid plasmas and the dried plasmas were actually carrying the hepatitis.
- Morris: So that one blood with hepatitis in it would contaminate the whole batch?
- Cutter: Right.
- Morris: And at a high enough level to produce it in another person?
- Cutter: Yes.

Morris: That's curious.

Cutter: It's more than that! It's very sad.

Morris: Now, was it during the war period that you went right ahead with the other fractions?

Cutter: Yes.

Morris: Whooping cough was one that I've come across reference to.

Cutter: Hypertussis, yes.

Morris: Now, how did that differ from the earlier pertussis?

Cutter: Well, that was a gamma globulin. That was derived from plasma fractions, whereas your earlier pertussis products were more truly bacterins or bacterial vaccines made from the pertussis organism itself. It had no human serum or animal serum in it.

Morris: I see. Now, did you have people in the research laboratory working on the globulin?

Cutter: Oh, yes. We did. Dr. Fred Johnson did particularly excellent work on it, as did John Hink.

Morris: Were these people who had been on your staff prior to the war?

Cutter: Yes. That's right. They were biochemists.

Morris: Were they already interested in the possibility of blood fractions for medical use?

Cutter: I don't remember.

Morris: But once you got into plasma processing for the military, the possibilities then opened up so that you went ahead to see what else could be done with the substance now that you were in it?

Wartime Relations with Other Manufacturers and the Government

Cutter: Yes. Again, I say, don't miss my brother Ted on that.

Morris: I have started a folder of questions to ask Ted; it's getting very large. Now, in the production of the blood products, Mr. Snow's report mentions that this was the first time that you used a subcontractor, this being that you needed a steady supply of the plastic tubes and sets.

Cutter: That's right. We did use Sterilon, I think it was, or it later became. And we nursed a viper to our chest. We produced a competitor! [Laughter]

Morris: Oh, dear! In other words, they hadn't been in this particular line?

Cutter: No. They hadn't been in this field. So, by getting them into it, we really made a competitor. Actually, we did that too with a firm that Pres Snow was later associated with. That was Hyland Laboratories. He was doing liquid plasmas in a small way, and I don't remember whether he was doing any gamma globulin work or not. But anyway, he didn't have any sales facilities at all, so he contracted for us to sell his materials.

Well, we sold enough of it that we gave him a financial base and foundation so that he went into it. And they still are one of our principal competitors in the plasma fraction business--the Hyland Laboratories.

Morris: And where are they located?

Cutter: In Pasadena.

Morris: So, they're local as well as competitors.

Cutter: Yes. They were later bought by one of our competitors in the intravenous field, the Baxter Laboratories. That is not the Don Baxter. Don Baxter sold his franchises in all but the eleven western states to Fox. I mentioned this before.

Morris: And I didn't get it straight. I'm glad it came up again.

Cutter: All right. He sold the franchise for his Baxter solutions, along with his name to be used on them, and any patents or trade secrets he had to--I think they called themselves then the Baxter Laboratories. And now, I believe, they've changed their name to Travenol Laboratories.

But it was they who bought the Hyland Laboratories, and not the Don Baxter Laboratories. Actually, the Don Baxter Laboratories were later bought by the American Hospital Supply Corporation. And the name of that has been changed now to the McGaw Laboratories. Foster McGaw was the founder of the American Hospital Supply Company.

Morris: Originally they were all Don Baxter's laboratories, and he sold part of them to one firm and part to another firm?

Cutter: Now, wait a minute. He continued manufacturing himself as Don Baxter Laboratories here in the eleven western states. He sold

- Cutter: all of his eastern rights to the intravenous solutions to what were then called the Baxter Laboratories of Morton Grove, Illinois. But he continued himself. He didn't sell his rights here. He continued to produce.
- Morris: To produce his own solutions?
- Cutter: Yes. That's right.
- Morris: And he then, at a later date, sold the Don Baxter Laboratories to American Hospital Supply?
- Cutter: That's right.
- Morris: Good! Now I think I have it straight. Did the government contracts include the cost of the production equipment?
- Cutter: Yes. They were designed to amortize, either directly or indirectly. Again, that's a question that Ted will be able to tick off right off the top of his head.
- Morris: So that you didn't have to find the money--?
- Cutter: I'd be trusting my memory and Ted's would be so much better than mine because he negotiated all those contracts.
- Morris: From your point of view, were there things to be learned from working with the government that you hadn't--?
- Cutter: Well, what do you mean, things to be learned? How to do business with the government? Or did we learn from them processes which we did not know?
- Morris: Well, first in the process and production line.
- Cutter: Well, not an awful lot directly from the government, but with our association with the Harvard laboratories and the entree into that, yes. Again, you shouldn't be asking me about these things here. This is Ted's field. He'll give it to you accurately and succinctly and splendidly, while I'll just fumble around.
- Morris: One other question. Mr. Snow referred to an investigation for the surgeon general's office on the costs of the program.
- Cutter: Go over it with Ted.
- Morris: Okay. The other major volume category of your wartime work was for penicillin. Am I right?
- Cutter: Yes. Right.

Morris: Okay. Let's talk about penicillin.

Cutter: Not with me. You talk with Ted. All those things with the government--you just talk that over with Ted and you'll get so much more. I wouldn't even bother with me on it.

Morris: Well, then the question is what was your major responsibility during the war years?

Cutter: Well, it was the penicillin, the plasma fractions. I would say that was the big one. And the plague vaccine and the intravenous solutions.

Morris: Did any of this involve people from the laboratories going to the war zones to observe or advise?

Cutter: No, not that I recall.

Morris: So, during the period from 1941 to '45, what were you doing as an individual?

Cutter: I was the chief executive officer.

Morris: Well, you said that your brother would know the details of the government contracts and the production story on penicillin.

Cutter: First of all, he's got a better memory than I do. Secondly, he was right in the midst of it. He knows a great deal more about it. Thirdly, before, during, and after, I depended on him absolutely in these fields. I would take his judgment over my own in any of it.

Morris: So that your responsibility was keeping all the pieces moving along and seeing that everything was there when it needed to be?

Cutter: That's right.

Morris: In terms of the penicillin, there's one question I might ask you about. There was reference to Hayden material. Now, is this another laboratory that was producing penicillin before you got into production?

Cutter: You ask Ted! [Laughter]

Morris: All right. And then, you stopped producing plasma on fairly short notice and you stopped producing penicillin on fairly short notice several years later. How did you use the production capacity?

Cutter: Well, the plasma part of it was largely being used for the fractions as well, you see. We had to have plasma coming in for fractions. We just stopped producing human dried plasma because we were then getting into the hepatitis. Again, you ask Ted about this. He's the guy!

Penicillin, I can tell you. I watched the curves on the price that we were getting for penicillin and our production costs on it. I watched it like a hawk for over a year because I was of the impression that we could not produce penicillin competitively in a plant in the West, where most of your materials had to come from the Midwest or the East, nor in the size plant we had. I felt that a plant much larger than ours and located in the East or Midwest would just out-compete us like nobody's business.

And so, when I saw the curve at which we would be able to buy penicillin for distribution through our channels was going to intercept our cost curve, there was no sense in going on. We just cut it before we--we could have lost our shirt if we'd tried to continue on, you see. Even after we quit, the cost curve that we would have had to pay was just going down and down and did go down and down and down. We would have been in serious financial trouble if we'd had our pride out there so that we couldn't drop it, you know.

It's a much easier thing to add a new product than it is to discontinue a product. Whenever you add a new product, you go into it with a lot of hope and verve and enthusiasm. And when you discontinue a product, why it's--in this case it wasn't an admission. We went into the thing on a wartime proposition and in a wartime plant and all of that, so there was no stigma in getting out of it.

As a matter of fact, I look at it as one of the smartest things I ever did, to get out of it!

Morris: Was there any reluctance from other people in the organization?

Cutter: Well, of course, all those who were involved in the production of penicillin didn't want to get out of it, naturally. And the sales department, of course, wasn't very enthusiastic in giving up a line of products which was bringing in quite a bit of money. I would say that there was no joy in Mudville when we gave up producing penicillin.

Morris: Are the economies in large-scale production of penicillin that great? As you continue to increase your capacity, the unit cost goes down?

Cutter: Well, you can put in an awful lot more research on it. You can put in a lot more production engineering on ways of doing it better. Your batch sizes are tremendously greater, and your tests per batch are the same, whether it's a small batch or a large batch. So, it just was very clear that if we wanted to continue and lose our shirt, it was a very easy proposition.

Morris: And this would be several years after the war. It was, in fact, the early Fifties, wasn't it?

Cutter: Yes.

Morris: I'd like to talk a bit in general about those war years. Was that your first encounter with an agency like the Labor Relations Board?

Cutter: Let's see. NRA. That was Mr. Roosevelt's first hundred days-- that probably would be our first.

Morris: Then in the '40s, there are a couple of documents referring to the War Labor Board and its discussions with you about salaries.

Cutter: Well, you see, the salaries were so-called frozen, you know, and if there was any raise, it would have to be on the basis of some special reason for it. It would have to be carefully documented and approved and all that sort of thing.

Morris: There were a couple of wage raises, one in late '42 and one in early '43.

Cutter: Oh, I'm sure there were more than that.

Morris: And then they kept on during the war.

Cutter: Yes.

Morris: That's interesting.

Cutter: Well, there was evidently reason for it. Actually, this rather penalized Ted, Fred, and me, because in the early years of the laboratories, we had taken very small salaries. We had to, to start out with, during the Depression, we had to and all. As I remember, my salary, as we went into the Depression, was five hundred dollars a month. This was for an MD who had been out of college for eight years. And during those years, I took cuts down to four hundred dollars a month. And then, it was only later that that went up. Oh, I don't remember how late it was, but I know it was quite late that my salary was nine thousand dollars a year. Looking back on it, we should not have cut our salaries as low as we did.

Morris: You're saying that your salaries were low in relation to the wartime raises that you gave to the employees?

Cutter: Were low in relation to what men in similar size, type of industry would have had. I would say that the average would have been from two to four times higher than ours.

Morris: That's quite a differential!

Cutter: Oh, it's a tremendous differential.

Morris: How did employees' salaries compare with--?

Cutter: There was too little a gap between us, is that what you're asking? Our salaries to a certain extent held down those immediately under us in salary. And it was a mistake.

Morris: Did these wartime revisions in salary schedules and wage schedules-- did you feel that they'd continue after the war, or did you feel that the wartime raises were an emergency--?

Cutter: No. We continued and continued to raise after the war. After the controls were lifted, we raised quite a number because we felt that we had not been as competitive in the labor market as we should have been. I don't mean just labor, I mean executive as well as scientists. Of course, we were here in a very favorable location from every standpoint, in a university town, favorable climate and everything. So we got a lot of men because of that, in spite of the fact that our salaries were not as high as they should have been.

Morris: Did you lose a number of people to military service?

Cutter: Oh, yes. We lost a great many to the service, although Art Beckley did a very monumental job of keeping our key employees from being drafted. In other words, he kept full-scale files, was very well informed on all of the procedures to do with the draft boards, and what they needed to make their decisions. He did a very excellent job, far better, I would say, than many companies, in keeping our work force. Fortunately, of course, we were doing very essential war work.

Morris: Yes. I remember that you could be excused from the service as an essential employee. So that it wasn't very long before you won an Army/Navy "E"?

Cutter: Yes, somewhere along the way.

Morris: I have it dated as March, 1944.

Cutter: I'd forgotten.

Morris: It looked like it was quite a ceremony. They must have been very proud of you.

Cutter: That was big stuff! [Laughter]

Morris: Now, were you able to meet your civilian sales needs during the war years? Did they drop off considerably?

Cutter: No, we did a pretty good job of keeping up with them, too. And again, you see, it was in the health field, so even there, we didn't have our top men, a PhD in chemistry or bacteriology or whatever it might be, pulled out from under us to be sent over to shoulder a gun. So, we really, from that standpoint, were very fortunate. We even maintained our sales force pretty well, although we lost men in the sales force, of course, because that was a very vulnerable occupation.

Morris: Yes. I can see that. So that your production for the military was over and above what you had been producing?

Cutter: Yes. If you look at the sales total line, you'll see we went from about two million and we kept going up. And after the war was over, we had way more than what we had before the war in civilian business. That business had grown, too.

Morris: During the war years?

Cutter: That's right.

Morris: And the government contracts continued?

Cutter: Yes. Some of them.

Morris: How did the government contracts continue when the war ended?

Cutter: Well, they had an awful lot of men still in--you know, we had occupying troops all over. Don't you remember? We still have them in Germany. We had them in Japan. We had them in Okinawa, in Italy, all over. Don't you remember? We had many occupation forces.

Morris: Yes. But they wouldn't need the kind of medical supplies that people being wounded in action needed.

Cutter: They needed intravenous solutions and so forth, not to the same degree. But we still had contracts.

Morris: I have one note here that I do hope you have a recollection of. This is a letter that Pres Snow wrote to a friend back East; it was reported in the Microscope. What he was concerned with was--

Cutter: The manure disposal.

Morris: You're right!

Cutter: I remember that. [Laughter] Wasn't that a choice letter!

Morris: It's a choice letter and it's a marvelous example of the things you never think about that are really a crisis.

Cutter: You never think of. Yes, that's right. [Laughter] It was a true crisis too! I've forgotten what finally happened, but finally, we were able to get out from under the pile.

Morris: And this was because of the need for tetanus?

Cutter: We had tetanus horses. Right.

Morris: And were they stabled here?

Cutter: Yes. They were stabled in the big brick building over on Seventh Street. The whole building there was full of horses.

Morris: At what point did the City of Berkeley object to having horses within its limits?

Cutter: As far as I remember, they didn't ever really object. Did you run across something here?

Morris: Well, I know that now in 1972, you can't keep horses or cows or chickens in your back yard.

Cutter: I think you'll find that there's still a slaughterhouse. Don't mention this to anybody! [Laughter] I think that's still zoned for slaughterhouse.

Morris: We've mentioned security briefly. I was surprised that there was not just one agency for civilian security, but that the army and the FBI and various other military security organizations all had a finger in what Cutter needed to do in security?

Cutter: Well, yes. That was, you know, just part of any wartime industry. They were protecting us against sabotage and spying, stealing of secrets, and so forth. We had what any wartime industry would have had. We then had to put guards on the gate. As I remember, they were armed guards. And we all had to wear badges with numbers and so forth.

Morris: Was there any sabotage?

Cutter: No. Not that I recall.

Morris: Have you ever had any industrial sabotage?

- Cutter: Yes. During one of the strikes we did. And also, there was that thought that in 1948, when we had the dextrose solution trouble, that could have been industrial sabotage.
- Morris: During the three years 1942 to '45, Cutter sales went from \$2,800,000 to \$6,500,000 roughly.
- Cutter: Yes.
- Morris: Is that what they call an exponential growth? You tripled business in three years.
- Cutter: I wouldn't know. I don't know any big words. [Laughter]
- Morris: I don't know that big word! One of our professors in business history used it, and I thought I'd try it out on you.
- Cutter: [Laughter] Well, that's like the word "entrepreneur" and a few like that. You hear them more in high school economics classes than you'll ever hear them out in the business community.

Long-Range Decisions Develop

- Morris: What I'd like to talk about now is the postwar planning process that went on. From the materials in the Old Timers Room, it seems that you did quite a lot of planning.
- Cutter: We did an awful lot of it, worrying for fear that once the war was over, our business would slump right down. Fortunately, that did not occur.
- Morris: I was interested that as early as 1944, Pres Snow had written a memo on his thoughts for preliminary planning.
- Cutter: Well, Pres was actually the one to whom that was mainly assigned. He was assigned to get out to make that survey and to do the planning. So, anything that he says on that would be what it actually was.
- Now let me just see here. [Pages through papers] What year did you give?
- Morris: In 1942, the figure that I found was \$2,875,000.
- Cutter: That's right. And then we went the next year to \$4,000,000 and the next year to \$5,000,000 and the next year to \$6,700,000 and the next time to \$7,000,000.
- Morris: That's 1946.

Cutter: Right. So that, yes, they did go up. But you see [points to chart], while they didn't build up that rapidly, neither did they drop down, you see. Well, you might say these three years were static, 1947, '48, and '49. And then, we went to nine, eleven, eleven and then fourteen million.

Morris: 1950 was the \$9,000,000 year.

Cutter: Yes. And then we had the diaster. We went to \$14,851,000 and then we had the polio thing and our loss of about \$4,000,000. [Looks at chart] Yes, it went back to \$11,500,000 in 1955. But then again, you see, that was the low point, and the next one was \$13,700,000 and then \$16,000,000; \$18,000,000; \$21,000,000; \$23,000,000; \$24,000,000; \$29,000,000; \$30,000,000. It's gone on up since then.

Morris: To what do you attribute the fact that you held the sales to that wartime level? You had the productive capacity, but you said you'd lost a number of your salesmen.

Cutter: Well, we lost them, but we kept replacing them. And we kept selling harder and harder. You see, here's the World War II. [Refers to chart] I think I'll review that. There are plasma, intravenous solutions, plague vaccine, blood fractions, albumin, and penicillin; those were the big items. And then, I would say, in here that plasma fractions and IV solutions were largely responsible for this postwar increase. And then we got into Korea, you see. Again, we took a jump there. We got into gamma globulin for the Red Cross and the Polio Foundation, and Dextran* to the government and IV solutions to the government.

We just increased business, and then we started to make our acquisitions. The first acquisition was in November of 1954, the Plastron Company. And then in July of the next year, we picked up Pacific Plastics. We picked up Ashe Lockhart in February, 1955, and then Haver Glover in December of the same year. So, we actually made three acquisitions in that year.

Morris: In 1955?

Cutter: And then we picked up Hollister Stier in April of '58.

Morris: Going back to the planning that was done in the Forties, Pres Snow, as late as July of 1945, was predicting that "government business is a thing of the past and civilian competition is in its true place in the scheme of things." That's a quote from a letter he wrote to salesmen. I wondered at what point you realized as an individual that government business was going to continue to be a major--?

Cutter: Pres Snow, I think, was more convinced than anyone else that government business wasn't going to be any more. I don't think

Cutter: that Ted or Fred or I actually went along as strongly on that basis as he did.

Morris: He also was impressed with reading he had done, which speculated on the postwar period: that there would be a need to employ the largest number of people that any firm could. In other words, he contrasted it to the traditional idea where you kept your employee list as small as possible in order to contribute to operating economy.

Cutter: I didn't remember that thought of his. I'm afraid it didn't impress me greatly. [Laughter]

Morris: That's why I wanted to test it out. The other result of his reading is one that entertained me reading it twenty years later: that there would be a demand for lower distribution costs from the public. [Laughter]

Cutter: That demand has certainly come out. That was a good prophecy.

Morris: Yes. And he posed a number of very interesting questions. He thought that price trends should be considered, that there was a trend for prices to go down over the past few years and that there was also the possibility of new competition. He was, at that point, thinking that chemical therapy would be making many biological therapeutic agents obsolescent.

And there was a question as to which were the fields that would be most profitable for sales, such as hospitals, public medical services, veterans administration, and exports.

You said he was assigned to prepare detailed studies of these things? This memo he wrote must have been the first--

Cutter: That's right. He was assigned to figure out what were the probabilities and possibilities. As I remember, what I asked him to do particularly was: "Figure out, Pres, if the worst happens, then what do we do? How do we look then? And let's say that the best we could hope for happens. Then what do we do and how do we look?"

Well actually, it was the latter that took place. So, the planning, you might say, came to naught. But had the business gone down, as it very well could have, it could have just taken an awful flop, why then having had this planning on board would have been a great help to us.

Morris: A number of things happened shortly thereafter, and I wondered how many of them were the result of this planning. In other words, did you and your brothers discuss with Mr. Snow and Mr. Twining and the other executives, a plan, guidelines, for the future of the firm?

Cutter: Yes. But as so often happens, things went in such unexpected and different directions which couldn't possibly be foreseen that only the bare outline could be of any value. Details stretching out two, five, and ten years were interesting and would be interesting from an historical standpoint, but as far as any help in managing what was happening at that moment, actually no.

Morris: What do you mean by things going in unforeseen directions?

Cutter: Well, in other words, penicillin going off to nothing, solutions continuing to go up, and, let's say, there must have been considerable finger-crossing with reference to plasma fractions, since everyone else in the industry except Cutter got out of it. So that had to be a place where we couldn't say: Oh, yes. There's no question about it. That's going to take off and be a very large factor.

It was probably really only because--my medical betting on the thing was that this just had to be valuable--blood was such an important factor and the fact that I felt that we were just scratching the surface. I still think we're just scratching the surface of the value of things which may come from plasma and from the cells. The cells we haven't touched!

Morris: Pres Snow agreed with you on that. His top priority list of product areas that the laboratories should concentrate on were the blood fractions and plasma, and then BTV* in the veterinary line.

Cutter: That's right.

Morris: And then, one that I hadn't come across before this 1944 date was amino acids.

Cutter: Yes. But that really never developed into anything big. It actually eventually came down to be just another intravenous solution.

Morris: That's interesting in view of the amount of material being published now on amino acids in relation to what the basic source of life is. That's another territory?

Cutter: Well, yes. Now, what he's talking about with reference to these amino acids--he's talking about them in nutrition, to be able to sustain life through an intravenous injection, even when the patient could take no food whatsoever by mouth. When you're using dextrose, you're using only carbohydrates. When you're using amino acids, you're using proteins. Actually, now probably your best bet would be on the lipids, the fats. We're working very diligently on fats, have been for a number of years.

Morris: So that you provide potentially a balanced diet?

Cutter: Not necessarily a balanced diet, but a diet which will keep a patient alive longer than would just the carbohydrate diet.

Morris: I see. It's very logical and also fascinating.

Cutter: But undoubtedly in the future, it will come about that it can be supplied by a mixture of the carbohydrates, fats, and proteins. As a matter of fact, there's a rather interesting side thing in that. One time, and I presume it would be somewhere in the Fifties, Mr. D. Mead Johnson got hold of me by wire and asked if I would be in touch the next morning.

Actually, I had four other people who were going up to the mountains with me in my car for a trip. So, we got on the phone and I said: Well, is it likely to be long? He said: No. I said: Well, could we discuss it on the phone? He said: No. It's something I'll take up with you in person.

So, I said: All right. I'll tell you. I'll get my group and they'll be in the car and we'll meet you. As I remember, it was: I will meet you at the Mark Hopkins Hotel and we can have our talk, and then I'll just go ahead up into the mountains with my group.

So, I did that and it really was rather too bad that I didn't have more time to talk with him. D. Mead Johnson was the second generation of the Mead Johnson Company, which was very heavy on nutritional products, Pablum and the various infant nutritional products particularly. And they had gotten into the amino acids in this way.

They were producing amino acids in intravenous bottles. So, his question of me was: Bob, would you be interested in selling to us your intravenous solutions business? And I said, Indeed, no. Not by any possible chance. I just wouldn't think of it.

Morris: He wanted to buy the whole solutions business?

Cutter: Our whole solutions business. And I said I just wouldn't think of selling it.

Morris: The sales or the production, too, and the distribution ?

Cutter: Sales, production, everything. Well, it was too bad. He was on his way to Honolulu and I was on my way up into the mountains. It was too bad that we didn't have a chance to sit down, because subsequently, they went into the intravenous solutions business,

Cutter: and it was a rather disastrous move for them. If we'd had more time to talk, I'm sure I could have explained to him all the difficulties of getting into the intravenous solutions line.

Complexities of Production and Marketing of Intravenous Solutions

Cutter: He thought he could get into it with just one size bottle, a liter bottle, and with maybe just the five most important solutions. Well, I could have told him in two seconds that it wouldn't work and why, and that we'd gone through the same thing trying to keep the sizes of the bottles down, and also the number of solutions. However, he got into it. It was, financially, a very bad move from their standpoint. And they much later sold their whole intravenous solutions business at quite a loss to American Sterilizer, I think which later sold to American Hospital Supply.

Morris: What is the major difficulty in keeping a small, standardized line?

Cutter: Well, the hospitals want a full line. They don't want to have their people working with two different systems or having to buy from two different companies. The intravenous solutions line usually goes into a hospital as a unit. It's all Abbott, all Baxter, all Cutter, or all McGaw.

Other companies have tried to get into it. Parke Davis dabbled in it and so did Upjohn and Company. Others investigated it and got into it very little and then got out of it because it was such a complicated thing. It always seems such a simple thing to put a little sugar and a little water in a bottle and sterilize it. But the difficulty is that it is a very, very difficult product to make and to test and to get out properly.

From a sales standpoint, it's an extremely difficult proposition to change a hospital from one manufacturer's solution to another's. So, it was a bad game for him. Mead Johnson hired one of our very highly thought-of district managers, Mr. Orville Nuffer, at that time, to take care of his sales. And Orv knew the sales business, but he was just never able to get this off the ground for Mead Johnson.

Also, while I'm on that subject, Foster McGaw tried to buy our solutions business or Cutter Laboratories. Oh, that would probably be in 1959 or '60.

Morris: He wanted the whole thing?

Cutter: He would have taken either and or.

Morris: I see. What was his interest?

Cutter: Well, he wanted a solutions line. And it was only after that that he later bought the Don Baxter Laboratories.

Morris: What had he been handling before?

Cutter: He'd been into all sorts of different equipment for hospitals, particularly hospital beds, hospital surgical lights, the mattresses and all of that sort of equipment. Oh, and surgical instruments, too. Just anything the hospital bought.

Morris: Going back to Mead Johnson, I came across a letter from Jack Downing to you in 1948, in which he had some conversations with a friend who had been Mead Johnson's sales representative. And this was about a protein hydrolysate.

Cutter: That's amino acid.

Morris: Well, I wondered if that was one of these, too. And at that point, these two sales brains were wondering about Cutter distributing the Mead Johnson products. Jack Downing's feeling was that Cutter ought not to get into the production of this solution.

Cutter: It's a very difficult thing to get into production on. We've had a lot of trouble with it.

Morris: Did Cutter eventually go into producing amino acids?

Cutter: Yes. It's a very tough line.

Morris: Why are they more complicated than the dextroses?

Cutter: Well, they're more likely to cause a pyrogenic or other reaction. And they deteriorate and precipitate more than other solutions.

Morris: They're much more complex than the dextrose?

Cutter: That's right.

Morris: Since we've gotten into them, I have a 1958 reference to casein hydrolysate.

Cutter: Yes. That would be another protein.

Morris: Yes. I recognized casein as a protein. This reference was in an article about work with Plasmanate* done by Dr. Thomas Cock and some other local physicians. Cutter Laboratories provided

Morris: Plasmanate* to him for some research he did with children, I believe at Children's Hospital.

Cutter: Oh, yes. Well, that's something else again. I mean, that's your clinical trial situation in clinical research. We would simply submit the material and he would do the clinical work on it.

Morris: This is when you have a product that you feel is promising from your laboratories?

Cutter: Right.

Morris: And what is the procedure by which you make these clinical trials? Do you write to all the physicians?

Cutter: Oh, no. We have an MD who contacts these physicians and who knows the physicians who are capable of doing good work on clinical trials and all and who have the facilities. They discuss the matter with the doctor. They know which doctors are interested in what fields, you know. And occasionally, the doctor will have something that he would like to have prepared for him to try, in a mechanical way or even in the form of solutions, a different modification of a certain solution, you know.

So, we can suggest it, or he can suggest it. Usually, we suggest it and he does the clinical testing.

Morris: This is a stage that you have to go through to be sure that a new product is going to work in clinical situations?

Cutter: That's right. We were doing this, of course, years ago, but now it's all required by Food and Drug Administration regulations and rules. So, it's legally necessary.

Morris: It's required now as well as being scientifically desirable.

Cutter: That's right.

Morris: Does this mean that your clinical research people developed a panel of practicing physicians that they--?

Cutter: That's right. Actually, it's the same as anything else. They'd come to have confidence in us, and we'd have confidence in them. It's a two-way street, like everything else.

Morris: So, this means that they also have to keep track of who the new men are who are coming into the area?

- Cutter: Well, of course, every physician is not a candidate to be one who could be used or would be used for clinical investigation. He's a very special specialist and they're rare birds. It's not that any young kid coming in and practicing medicine can do an adequate clinical trial.
- Morris: I would think that a good panel would have to have new members on it periodically.
- Cutter: Oh, it isn't a panel as such. In other words, they're individual physicians, not as a panel.
- Morris: But you have to use more than one? You use several?
- Cutter: Oh, yes.
- Morris: Okay. Going back to '46, this was about the point that Mr. Twining's historical stages of growth came to an end, and I've set up a couple of additional ones in my head. It seems to me that this period from '45 to '55 could be considered as one of national expansion and development, and from '55 to '72 would be your emergence as a major U.S. corporation.
- Cutter: Yes. Now, Mr. Twining retired in '45.
- Morris: Yes. And in the early pieces that he wrote for the Microscope, he talked about the growth of the company up till about 1940. And he called the years 1926 to 1940 "arriving at maturity," which I think is a very good description. And, of course, at that point, he had no idea of what the next five years were going to hold in terms of national needs and Cutter's response to them.

Capital Stock

- Cutter: That reminds me of another piece of history. There was an insurance man here in Oakland, a very aggressive and well-versed insurance man, and he went to the group of Dr. Wood, Dr. Foster, Mr. Wood, and Mr. Twining and suggested that they put a certain part of their shares of the laboratories' stock into an insurance company. In return for this, they would get an insurance policy, and their stock would become the stock of the insurance company.**

** On the transcript, David Cutter added a note that it was a buy-back arrangement. The company agreed to buy an insurance policy to fund the purchase of one-half the person's shares at a fixed price. Ed.

Cutter: The idea was that they kept enough stock so that if the laboratories went on and grew, they were very adequately provided for, and if the laboratories went down, why their widows would be taken care of through the insurance. So, this insurance man came to me at that time with what he had in mind.

I pointed out that the book value of the stock was, I think, more than he had figured it, and I questioned the advisability of it. Well, the upshot of it was that Dr. Wood said that he would rather have the laboratory stock. And the other three went along with it.

I said: Now I don't like this deal, but if these men want it, all right. But I think it's not a good deal for them. I think the laboratory stock is going to be much more valuable than the insurance that you're putting in its place. But, on the other hand, I don't feel I can, from my optimism, overvalue the stock. This may seem, later, to all the rest of the stockholders as if I just actually shelled out this money to top men in the company, that I was being Lady Bountiful with it.

So, he went back, then, to Dr. Foster, Mr. Wood, and Mr. Twining. Dr. Wood had refused in the first place. And Dr. Foster then pulled out. However, Mr. Wood and Mr. Twining still wanted to go ahead with it. So, they did.

Then, a year later, we were doing well, and I said: I still don't think this is a fair thing. I think you should consider getting out of it now, but I do not feel that I will be able to say this again; if the stock goes up to say, Well, now get out of it. I think that it would be unfair to Dr. Wood and Dr. Foster and to all the other stockholders. All it does is give you a heads-you-win and tails-you-don't-lose situation with no real cost.

Well, they talked it over and thought it over and they decided to go ahead with it. And, of course, it was too bad from their standpoint that they did, because--goodness!--the stock that they put into this, which only gave them a relatively small insurance policy, would have been worth--I know it was in the seven figures for Mr. Twining.

And at that time, he was still living, but had deteriorated mentally quite a bit. He was very senile, you might say, in some ways. But his family sued us on this situation, and I remember they put poor Mr. Twining on the stand. He said: No. I didn't have any idea that it was going to grow like that! Bob told me I ought to get out of that! [Laughter] It was an unfortunate thing all the way around. Now if the suit had gone against us, well--but the way it was, I couldn't have possibly have done it any other way--I could be sued by any stockholder

Cutter: who wanted to say: Well, you just gave away a million dollars of my value in the stock that they had.

So, as I say, you can see that it was no sure thing that the laboratory was going up, up, and up, as it has actually done.

Morris: Did this lead you into any kind of profit-sharing, or contribute to the decision you finally made to go public?

Cutter: No. It didn't have a thing to do with that. As a matter of fact, when we decided to go public was when we needed more equity capital. We were undercapitalized and we had to sell some stock. And also, the marketability of my mother's stock was a big factor, you see.

And, also, the aging of these folks--in order to be able to settle their estates, they were going to have to sell stock, and there was just no market, no organized market for it.

Morris: Within the firm, which is where the stock had been held through the years?

Cutter: Their stock in the Cutter Laboratories had little or no market, as any firm which is not sold to the public has really no market for their shares. The investors are very leery of a firm which has not gone public and had their shares at least quoted on the over-the-counter market.

Morris: Was that the first stage, to put it on the over-the-counter market?

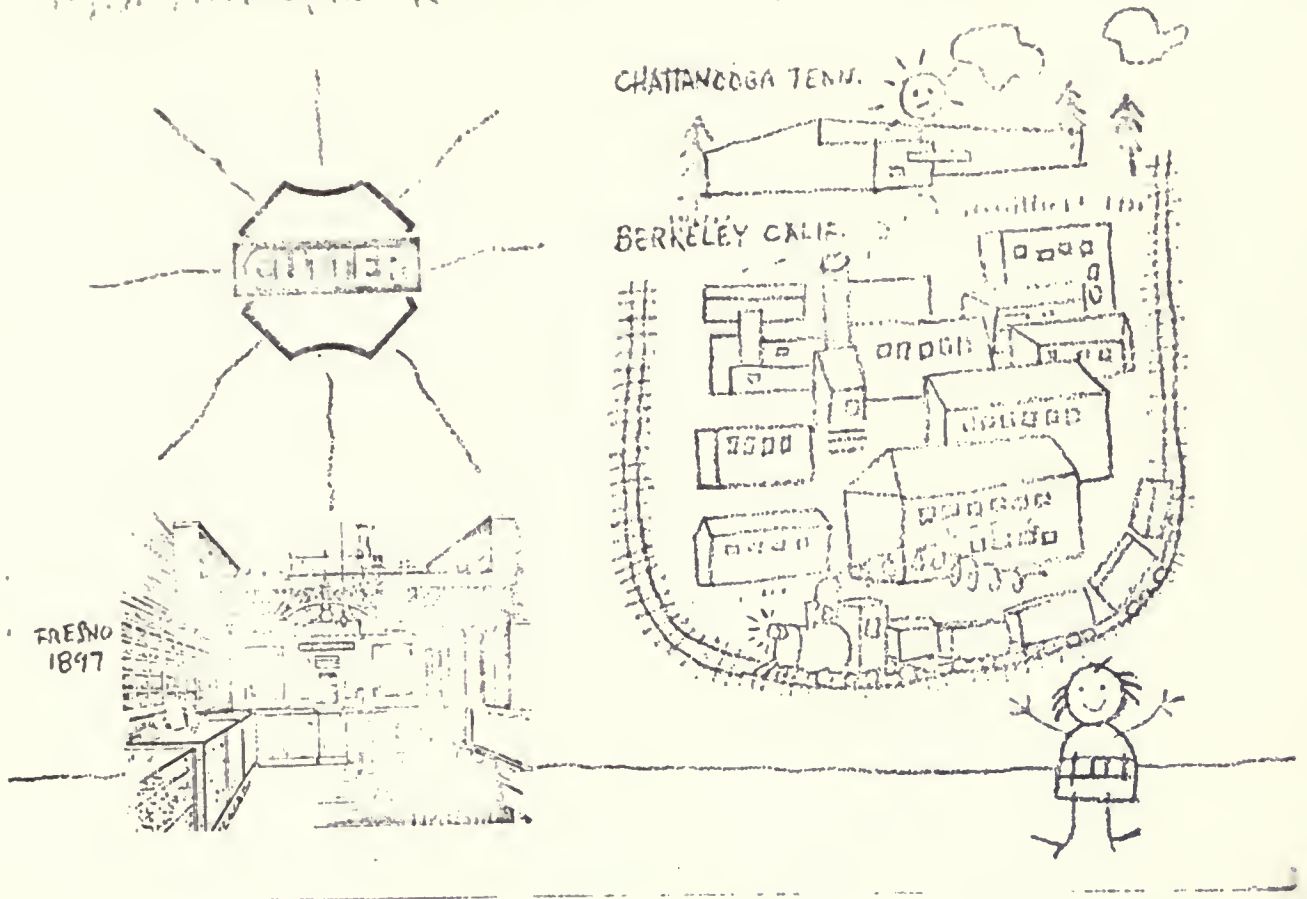
Cutter: Yes. But of course, now, there was one other factor. Now, that comes to another thing that I really should get over to you. I haven't gone into the A and the B stock, have I?

Morris: No.

Cutter: Well, when we came up against the possibility of selling stock, it was a very difficult thing to do, because by that time, through sales to the various employees, they--in other words, Mr. Twining had been able to buy stock simply out of, you might say, the earnings of the company. He had never had to go to borrow to invest in the stock. Well, he had borrowed from the laboratories to buy the stock, but the stock had paid for itself out of the dividends.

So, you might say it was profit-sharing right there. Dr. Foster, Dr. Wood, Mr. Wood, and Mr. Twining all had shares like that, as did some others like my Aunt Norah, Mrs. Norah Cutter Sattin, and Mr. Armstrong, who had been more or less of a handyman, you might say, but a very loyal employee, and others.

1951 ANNUAL REPORT - CUTTER LABORATORIES



CUTTER

BERKELEY • LABORATORIES • CALIFORNIA

Several years ago we produced the attached booklet on common communicable diseases of children. It has become known to physicians and pediatricians as "Cutter's little Willie booklet" and is the most popular advertising service booklet we've ever produced. We just completed our fifth printing bringing the total to over a million copies.

Because of the popularity of "Little Willie" we have patterned our first annual report on this theme.

HOW TO
PREVENT
DISEASES
OF CHILDREN—
your children



Cutter: District managers had shares. And then later, we got into stock options.

Well, anyway, when we decided we did want to get a public market for it, the Cutter family had over fifty per cent, but not too much. And the idea of relinquishing the control was just something very difficult to stomach. And so, I went over and read what I could in the various books on financing and all, and came up with a so-called limited voting stock, which later became the B stock, or the family stock, as against the voting shares, which later became the A stock.

I was told by the people of Blyth and Company, with whom we had been working with the object of doing something with our stock: You can't do that. You just can't do it. The corporation commissioner just won't go for it. I said: Well, what's wrong with it? Why won't he go with it? We're not trying to do anything. We just don't want to be taken over by somebody like Wolfson.

Wolfson--you probably don't remember the name. He was the guy who tried to take over Montgomery Ward and did take over larger firms. He just got in and borrowed and got the stock and then turned around and milked the concerns. I think he eventually ended up in a prison. But anyway, this was a great gobble!

Morris: I remember. In the early Fifties.

Cutter: This is probably when it would be. But anyway, I said: "Well, I do not see why not. There is nothing underhanded, nothing dishonest, about what we want to do. We don't want to try to cheat the public or anybody else. We simply wish to keep the control in the family holdings. And anybody who would buy the stock, either share, would know exactly what the rights were and what they weren't."

Well, anyway, they yelled: No. So, I said: Now I'm going to see about this. And no, the commissioner wouldn't go for it. So, I said: Well, I'm going to see the commissioner! So, I went over with a man from Blyth, one of those who hadn't been loud on why I couldn't do it. I said: You stay home, to those fellows. I don't want you anywhere around! [Laughter] But this other fellow, who'd scratched his head and didn't know on it, I took him over with me, thinking that there might be some technical things.

Well, the corporation commissioner was a very fine chap. Isn't that a shame I don't remember his name now! But anyway, he listened to it and asked me a few questions. He said:

Cutter: Well, could you do this? Would you be willing to do this? I thought over what he had in mind and I said: I don't see any reason why that wouldn't be all right.

So, the upshot of it was that we had approved verbally right then at that moment something which they said just couldn't be done. So now, what has happened is that the Cutter family still owns a little over fifty per cent of the B stock.** There has never been another share of B stock issued since that time.

(I shouldn't say that, because we did split the stock, but the proportion remained the same. Let's put it the other way for simplicity. There has never been another share of that issued.)

However, any stock options, any sales of stock or anything have been in the As. [Checks record]

There are now over 2,060,000 shares of the A stock and the other one, the B, still remains at somewhere around 497,000. Now, the class A stock elects half of the directors by cumulative voting, and the class B stock elects half of the directors by non-cumulative voting.

So, if we own fifty per cent of the B stock, we can elect half of the directors. Let's say there would be ten directors. If we owned a fifth of the A stock or controlled a fifth of the A stock, then we could elect one more than half of the directors.

Morris: In other words, there's nothing to keep a member of the family from buying some class A stock too?

Cutter: No. We had it in the first place, you see. So, we have control of the company through our B stock. Even though we actually don't own more, our feeling in this is that we actually do a better job trying to run this company that bears our family name, and all of our pride and everything else is in it, than would some outsider, or than a Wolfson or somebody like that that would come and have a takeover.

Morris: When you completed this arrangement and put the new stock on the market, how did you go about selecting the candidates for the additional directors?

Cutter: Well, they were just nominated. The directors nominated them and they were elected at the stockholders' meeting and that was that.

**This situation, of course, changed in late 1973, when Cutter Laboratories became a division of Rhinechem. Ed.

Morris: At what point did there begin to be new directors on the board? **

Cutter: I've forgotten when the first outside director came. It would be in the minutes.

Morris: In general, have you felt that they have--

Cutter: They've been helpful, very helpful. As a matter of fact, we've never had any arguments or any difficulties in that way.

Morris: There was no sense that they were trying to impose their ideas or turn the company in a different direction?

Cutter: Oh, no! No! They've been very anxious to do everything they could to see the company prosper. They'd give us help and they do give us help.

Morris: In reading about the stock going on the American Exchange, there was a comment that large numbers of physicians and medical groups of various kinds had bought the Cutter stock. I wonder if you could comment on that.

Cutter: Well, it's just natural that they would be interested in the stock of a company they would have known something about, you know. I think it's not unusual for people who work in an industry to be more interested in the stocks of that industry than perhaps others.

Morris: Would the brokerage have made any effort particularly, do you suppose, to contact them?

Cutter: Probably originally, yes, knowing it was a medical place, a medical house.

Morris: I think that covers a good amount of territory for today.

Broad Company Policies

Morris: Can you give me some background on this list of company policies?

Cutter: They were used in the supervisors' manual, also in the organization manual, and I think they appeared in one or two other places. Now, here is the supervisors' manual. [Pages through manual] The actual preparation of this basic supervisors' manual, I imagine, was in '59 or '60. Now, here's the introduction which

**See interview with Harry Lange.

BROAD POLICIES FOR THE CUTTER LABORATORIES

1. To continue the existence of this concern.
2. To grow but never at the expense of safety. No venture, no matter how alluring its promise if it succeeds, should be entered into if its failure could jeopardize the existence of the Laboratories. There should be a clear distinction between risking a few eggs on an optimistic gamble occasionally, which is very desirable, and risking all the eggs in our basket. A few eggs lost can be replaced. If all of the eggs are risked often enough, they are bound to be lost and once lost cannot be replaced.
3. To grow by our own efforts and never to get into any promotional or speculative fiestas whereby we grow by absorbing many smaller companies. (This does not mean that there could never be circumstances which would make it advisable for us to purchase or absorb a smaller company.)
4. To refuse to sell out to or be absorbed by another company no matter how attractive the proposition. Those who have long been associated with the company are more likely to do an honest and good job of taking care of our employees and stockholders than are outsiders.
5. To do everything possible to make this firm one at which the workers, the supervisors, and the executives will like to work.
6. To strive for quality at least a bit better than our competitors' but never to purchase extreme quality at a cost so great that we must sell it at a loss or price it so high that it cannot be sold.
7. To secure adequate net profit to provide security for the firm, its stockholders, and its employees, and to provide buildings and equipment suitable for our needs and growth.
8. Through all of our contacts and letters to do everything possible to continue the reputation we now enjoy of being friendly, hospitable, dependable folks.
9. To adjust our building thought so that we will accumulate new modern buildings in the years to come instead of collecting some made-over inappropriate buildings.

Cutter: I put out in May of 1959. [Points to manual] And then, these broad policies. This particular revision was in 1960, and here's one from '65, but, you see, that's just a thing that has been added.

Morris: This list of policies that I found was with other papers that were dated in 1945, with an agenda for a board meeting.

Cutter: I see. It's altogether probable that this was 1945.

Morris: It seemed to me that these might have emerged from the general, long-range planning that was going on at the end of World War II. Was that a likely time to try and write down, in policy form, what had been guiding the company over the years?

To Produce Quality Products

Cutter: This really is reducing to writing what had actually been the actual global thinking policies of the company.

Now, this one policy here was misunderstood in the earlier drafts of the broad policies, the Policy Six, which says: "To strive for quality at least a bit better than our competitors, but never to purchase extreme quality at a cost so great that we must sell it at a loss or at a price so high that it cannot be sold."

Now that was misinterpreted to mean that we did not want to produce quality products. Actually, the reason for it being stated that way was that we had some zealots--even in that day, we had zealots!--who were idealists to the point that, if left unsupervised, they could have put us out of business.

With an antitoxin, for instance, they wished to take only cream antitoxin of extremely high potency and put it down in a very small dose to such an extent that the dose was so small that you had to dilute it back up to make it so the physician could measure it. Well, to produce that high a potency product--
[Phone interruption]

Morris: We were on Policy Six. So, how did you solve the problem?

Cutter: Well, in other words, the idea of this was that if you have a product that is better than the consumer wants, and you have to charge more for it than he has to pay for a product which is entirely satisfactory to him, you're not going to help anybody doing that. The physician can't or won't buy your product and, therefore, what good are you doing for humanity or anybody

Cutter: else if your quality is so wonderful that it is out of reach of everybody?

In other words, General Motors has as its finest car, say, the Cadillac. Well, if they wanted to, they could put out a car which was a far better car than the Cadillac and maybe charge fifteen or twenty times for it what is now charged. Well, if there were enough people that wanted that car, maybe it would be a financial success, but if the car they ended up with was not enough better than the Cadillac or the Lincoln Continental or the Chrysler Imperial that people could see any advantage in putting out all of that extra money for this super, super quality car, then it would die a bornin'.

Morris: So it's a matter of determining the quality that will be most useful to the most users of the product?

Cutter: That's right. There's no question of producing low quality products. That's not the point. And that is what this was misinterpreted as meaning. So, in later editions, we got down to: "To produce quality products." [Laughter] It was made that short because it was just misunderstood, and there was no way I found, without writing an entire book on this one item, to adequately describe it without making it look as though you were really not very intent on producing quality products.

Morris: I see. This is a constant process, then, of determining the quality that you wish to maintain?

Cutter: Well, it has to be, particularly in those products that we were interested in at that time--the tetanus antitoxins and the diphtheria antitoxins and the tetanus toxoids and the diphtheria toxoids and the pertussis vaccine. You could, by taking only, say two per cent of the immunized animals, make a product, the potency of which was just tremendous. But, so what? People didn't care for that much potency. If they had to pay more for it, they would rather have a lesser potency which gave them the same results. As far as they could see, they weren't getting one bit better results from the very high potency material.

Morris: Is this determined by market research, or by clinical research?

Cutter: Well, actually, in those days, market research was "it ain't." Who did market research then, you see? It was just a matter of judgment. You just had to use judgment. You had to know what your competitors were doing, what their levels were and what yours were, where your costs were for one, where your cutoff point was. So, what you did was to make a good quality product, and not try to get your head into the stratosphere and do things which were absolutely impractical.

In New and Appropriate Buildings

Morris: That handwritten Policy Nine, I got a chuckle out of. It looked as if somebody had been concerned about the plant buildings themselves.

Cutter: Yes, yes. I would think that that was Mr. Twining's writing-- "to adjust our building thought so that we will accumulate new modern buildings in the years to come instead of collecting more made-over inappropriate buildings." That "new and appropriate buildings"--actually, here in Berkeley, we're still using buildings that weren't built for what we're using them for.

This building we're looking at over here on the right, the chemical building, that was an original Byron Jackson building. The office we're in was a Byron Jackson office. The laboratory over there with the tile roof was originally a hog cholera laboratory, but in 1926, as you pointed out, we moved the entire laboratories over here. And that was it. That, plus the veterinary laboratories over between Seventh and Eighth and along Dwight Way, that was the laboratories, totally.

Now then, instead of going the way that Mr. Twining was suggesting--if that is he, and I believe it is--we went another way. We felt that Berkeley was not the best manufacturing place for, first of all, intravenous solutions. They were really heavy. Our big market was on the East Coast and in the South. And you might say, since their principal ingredient was water, that we were shipping water across the country.

So, instead of tearing down this building, let's say, and putting a new one here, we put up our first new plant in Chattanooga. And I believe that the plans for that were running around in 1949. My memory is not too good, but it was in 1951, when we actually started manufacturing there. And then, it was much later, of course, that we put up the Ogden plant for intravenous solutions.

Morris: Going back to the Berkeley buildings having been originally for other use--[interruption by visitor] if the buildings were of sound construction and could be adapted to the uses that they were needed for in Berkeley, why did it bother people here at the plant?

Cutter: Well, because these are buildings--some of them were built just after the turn of the century. Some of them went through the 1906 earthquake. They felt, and rightly so, of course, that they weren't as beautiful as modern buildings freshly built would be.

Cutter: Well, for instance, right now. He's talking about new plants, and now, of course, they're looking at Chattanooga which, let's see, is twenty years old, and they're calling that not a modern plant. [Laughter]

Morris: I see. Because it's been in use for twenty years?

Cutter: That's right. I think there's a very happy middle ground between having to have a marble palace and having a hovel. Actually, some of our best, most profitable periods have been when we were just so crowded for space that we didn't know where to turn for an additional closet.

And also, I've never particularly been impressed that the work coming out of, let's say, a research laboratory with marble fixings was any better than research coming out of any adequately equipped laboratory, even though it was in a building far from a marble palace.

Morris: So that if there's a question of finance, you have opted for putting money into equipment rather than into the plant itself?

Cutter: [Laughter] We haven't opted! We've had to! No, in other words, as far as the history of this company, if we hadn't been able to buy this Byron Jackson plant here for far less than its value, we would not have been able to grow as we did grow. I'm sure that there were many prettier things that could have been done, but we didn't have the money for it.

Independence and Acquisitions

Morris: One other policy here particularly interested me. In this original statement, it was Policy Four: "To refuse to sell out or be absorbed by another company, no matter how attractive the proposition. "

Cutter: Yes. And that's still our policy to this very day. We have been approached by all but maybe three of the larger drug firms and by many, many, many large companies not in our field.

Morris: It's interesting to see the minor changes and the rearrangements between this early statement of the policies and the one in 1960 in the supervisors' manual.

Cutter: Is that so? I hadn't compared them.

Morris: The numbers have changed order, for one thing, and I wondered if this was a priority listing?

Cutter: No. I think there's really no priority.

Morris: Number One in 1960: "To continue the existence of this concern." That sounds like your writing.

Cutter: That's right. This whole thing is my writing--a clear distinction between risking a few eggs or an optimistic gamble occasionally--that's Number Two. Number Four is: "To refuse to sell out or to merge." I think that's restated probably. "To grow by our own product development sales efforts as well as by merging with smaller companies." That was a change between the two versions, you see. Let's see, what does it say in the previous one?

Previously, we had said: "To grow by our own efforts and never to get into any promotional or speculative fiestas whereby we grow by absorbing many smaller companies. This does not mean that there could never be circumstances which would make it advisable for us to purchase or absorb a smaller company."

Now then, that policy actually was shifted to one looking with more favor on the acquisition of smaller companies. That was an actual change of the policy. We didn't rule it out here. We left the gates slightly open. But the policy actually shifted to encouraging it, if we had a good possibility for acquisition, to actually encouraging it.

Morris: What brought about the change in your thinking on that?

Cutter: [Thinks for several moments] Well, for one thing, some of our earlier purchases or acquisitions were to get a job done in making our intravenous sets, which we couldn't get done otherwise. In other words, we absorbed a couple of small plastic companies and the veterinary companies. But the plastic companies were the first. And those have turned out to be very major acquisitions, though they were just little places. One was running in an old, small neighborhood garage, and the other was running in two twenty-five foot store fronts down in Los Angeles. Now they both have very fine plants of their own, and they're operating at good, substantial profits, net profits each year of far more than we originally paid for them in toto.

But we also put in a tremendous amount of fine equipment in those. We've gone on and equipped them and given good management to them. So, it wasn't just something we stole from the owners of the business.

Morris: In other words, the original operation needed to be developed, and has developed in response to market growth and product development?

Cutter: That's right. And also, in both cases, they also did work for other people. For instance, with the Pacific Plastics Company-- most of the plastic lids you get on your coffee cans are manufactured by Cutter Laboratories through Pacific Plastics, a wholly owned affiliate company.

By the way, we call them affiliate companies. We don't call them subsidiaries, because the term "subsidiary" has a--what--a certain derogatory sense in connection with it. Certainly, it isn't on a par. It isn't one of the partners. It's something underneath. So, we call them affiliates, which means something on a level with us.

Morris: I'd like to talk about this more when we get into the expansion of the firm. But on the policies, have they been changed in any major respects since 1962, when this manual, as you say, was retired?

Cutter: Well, let's say 1960, when this was written, because that was when I revised this broad policy of Cutter Laboratories. I would say that the only change in policy is this Number Five, where we said at that time: "To encourage the exchange of information, products, and services between all associated companies, while, at the same time, vigilantly maintaining the independence of each."

As a matter of fact, now, there are certain of those which have actually been absorbed into the company as divisions. For instance, the Resiflex Division in Covina has now been absorbed in and is part of Cutter Laboratories, corporatewise. It is not an associate company or a legal subsidiary.

Friendly Folks

Cutter: Now, I think that this one here that was Number Eight in 1945 and Number Nine in '60, that: "Through all our contacts and letters to do everything possible to continue to be known as friendly, hospitable, dependable folks." I really think that's the cornerstone of our whole philosophy. And I'd date this 1948, plus or minus, depending on when Mr. Twining--

Morris: 1946 was when Mr. Twining retired.

Cutter: Well, then, let's put this 1945, plus or minus.

Morris: Good. Just about that time, in 1946, there was an employee relations study that was quite extensive. And related to that, I think, or about the same time, is a correspondence survey, which you had charge of. Both of these seemed to be related, first,

Morris: to how employees felt about the company, and then in the correspondence survey, to how they projected how they felt about the company to the outside world.

I wondered why it was decided to do an employee survey?

Cutter: Well, I don't remember exactly any particular reason for doing it at that time. I really don't. I think my brother Fred was the mainspring in that, in getting it out and reporting it with the little pictures and so forth.

Morris: Yes. The pamphlet that was gotten out at the end of it was a very nice piece. Do you recall if the study and the report back to the employees made any noticeable change in productivity?

Cutter: No, I don't think so. In those days, we couldn't measure productivity that accurately. But I'm very firmly convinced that it is important to let your employees know that you are interested in them and that they are not just numbers. To the greatest possible extent that one can, I think it's very desirable for the management of the business to let the employees know that they're just ordinary men who put their pants on one leg at a time, that they're not Mr. Grump, who sits there with a big cigar and his feet on the desk and just delights in firing people.

You know, the image that a great many people have of the boss, almost any boss, has been just that. Now, of course, it was possible then. We were so much smaller. I used to go around, usually once a week and certainly every two weeks, just drop around to every department, and say, "Hello!" here and "Good morning!" there and so forth, and ask a question or two, just to let them see that I was just an ordinary guy, and to get to know them better, too, so that they wouldn't all tighten up when I would come around.

And, as I say, I knew them all in the early days. I knew them all by their first names and last names, their wives' names, their children's, how many they had, and so forth. But that, of course, becomes impossible when you've got something around four thousand employees. That just isn't a possible thing. Spread all over hell's half-acre, you just can't do it.

But to the extent that the man who is working with those people can do that, it is all to the good. For instance, another thing that I did and which I still do, and which Mr. Twining did--you remember his little column in the paper? I think that was very good. It showed him as a human being. And he had history things in there which told about the old days, and also descriptions of people around the plant. I just thought it was very good.

Cutter: So, at a later time, that's how I came to write the "Dr. Bob" column. I felt that it was something by which I could make it known to the folks that I was a human being. I try to write it not in the stuffy, dignified way. As a matter of fact, I'm accused at times of being too undignified in what I report of some of my trips and so forth. [Laughter] But this doesn't bother me one bit to be on the undignified side!

Morris: It gets your point across to people and helps them see you as an individual and feel, therefore, that the company is a living entity and a personality?

Cutter: That's right. And further than that, now, I feel that a man should do that not only with his employees, but also with his business contacts, the competitors and the suppliers. For instance, Mrs. Cutter and I used to get out Christmas cards which were mainly pictures. Oh, if we'd been on a trip, we'd be blotting out the scenery here and there. And then, there'd be a very brief little note as to what we had done.

I served on the board of the Pharmaceutical Manufacturers' Association for many years; not only to them, but also our suppliers and all, we sent this Christmas card which, again, I think was a far better way of keeping an acquaintance and letting them know us better than if they had only seen us at the annual meetings, all dressed up in our tuxedos.

But, no, I think there's a great deal to be done by the top management in humanizing themselves. I think its importance was, in my time, and is now, largely overlooked.

Morris: Did this same thinking carry over into your ideas on correspondence?

Cutter: Well, let's see. I've got a little manual here that I wrote in this period here of the Forties, around in there, on correspondence. Now, Mr. Rahill, who came here in 1912 and died in 1930, wrote very good letters. They might tend to be a little stiff, but, on the other hand, he could get right down and be very colloquial. He wrote good letters. And I couldn't help but compare them with the letters that a Mr. Elliott, who had to do with collections, wrote. They were simply terrible! The gist of them was: Come through, you bum! Come through, you deadbeat! [Laughter]

But after 1930, when I had to take over, why I went over quite a series of these letters with Mr. Elliott. I would take a letter that he had written and write it in an entirely different tone. I wouldn't send it out, but I would say: Well, how about this? Well, it was pretty darned hard, but finally, Bob Elliott tried it a few times and found he got better response



Cutter: than he did from his "Come through, you deadbeat! letters.
[Laughter]

Morris: How do you say: Come through, you deadbest! in a more polite fashion?

Cutter: Oh, well, you don't have to say: Come through, you deadbeat! You can say: We were just going over the accounts here and we see that yours shows that there is such and such amount that is past due. We're sure that this probably was an oversight, and we surely would appreciate receiving your check when you find it convenient. Something like that. I mean, it does just as much good as somebody saying: Come through, you deadbeat! because all that does is irritate the man.

And he's probably in financial trouble, or he'd be paying his bills. But the guy who treats him reasonably well, if he's persistent, is likely to get his share of what's coming out of this turnip, rather than the man who's been rude about it and crude.

But anyway, Bob finally got a series of letters that were just actually--as a matter of fact, every once and a while, there'd be some chap, some druggist or somebody, who'd finally send in a check, and say: Well, I didn't pay just because I wanted to get this entire series of letters so I can use them on my own delinquent accounts. [Laughter] So, I said if Bob Elliott can come around to write such wonderful letters, there's no reason that the rest of them can't. There wouldn't be anybody who wrote worse letters than he did originally. So, that's how I came to write the manual.

Morris: And then for about a three-year period, you took a sample of letters coming out of each executive office. How did the executives respond to this?

Cutter: Well, that varied a great deal. There again, if they were writing good letters, why I'd compliment them on it. And if they were occasionally coming out with a real bummer, why I'd shoot the letter back and just say: Would this have worked any better? How does this sound to you? And they got the point.

No, I think overall, during that period, our letters were very good letters.

Morris: And is a manual of this kind still part of company procedures?

Cutter: I'm afraid the manual's been pretty well forgotten. [Laughter]



Morris: How about the occasional survey of correspondence?

Cutter: I think that's probably been forgotten. I think this, that one very definite thing that I've seen in my lifetime has been the depersonalization of business correspondence.

When I first went into corresponding, and this I did at a very early age--I was actually doing routine correspondence probably in 1919, along in there. But while those letters were very dated by present standards--they'd say: Yours of the seventeenth instant received and contents duly noted. [Laughter] Nevertheless, you'd send out a letter thanking a man for his order, thanking him for sending his check.

Personnel Policies Regarding Members of the Cutter Family

Morris: In the years following World War II, you were doing surveys on a number of things. Another one in a file in the Old Timers Room is on the employment of relatives in corporate company management. That file started out with a reference to a study by Booz, Allen and Hamilton. What had you asked the Booz Allen people?

Cutter: Well, I'd asked what other companies, which had been family companies, had done about members of the family coming through. And I recall that I wrote to the chairman of the board of the Du Pont Company, and received back from him a very courteous and quite long letter, tracing the Du Ponts--not just Du Ponts by name, but by relationship--through the Du Pont organization from the beginning of the company.

And I also wrote to other companies which I'd thought of as family-owned corporations, and some had policies and some didn't have policies.

Morris: They were very thoughtful replies. I was impressed, both by your forthrightness in writing to them and saying: We seem to be in the same boat. How have you handled the situation? and by the fact that those other corporation executives had given this matter some thought. Apparently, Booz Allen had recommended against employing members of the family and you had disagreed.

Cutter: I had forgotten that.

Morris: The Booz Allen report is not with the file, and I wondered about that.

Cutter: No, I think, actually, the Booz Allen report would be Ed Booz himself. You see, Ed Booz came out because he had a daughter in college out here, and he liked to come out to California.

So, we were really quite lucky, because he was a very, very high calibre, high-class man. And I doubt if any of their accounts had as much personal time from Ed Booz as the Cutter Laboratories did. I remember we had him up for dinner at our house. I asked him to take the boys into my den and to have a little talk with them. And he did. He was certainly able to put his finger on what their strengths and weaknesses were. He was a splendid man!

But I didn't recall there was any difference or other recommendation other than--maybe there was. Maybe that's why I wrote to these other concerns, because I think out of that came our policy of not hiring any relative--if it's written up, you'd better take it as it's written up, because I'm just doing it from memory--but as I remember, within two years after graduation from college or four years after graduation if they only went through high school.

And also, that there's a--I forget whether it's a six-months' review or a yearly review of a member of the family by the board of directors. And the consequence of them finding that the relative is not a definite asset to the company [is that] he will be asked to find a new position within six months.

Morris: Within six months? Is that a shorter probationary period than--?

Cutter: No. It is put that way so that he's just asked to find another position; he is not fired. He resigns to take another position. But he doggone well had better do it within six months; [Laughter] The thought is, if he doesn't he would have to be discharged.

Morris: The idea being that the earlier such a change is made, the better for all concerned?

Cutter: It's better. Particularly for the individual concerned, and, of course, for the company, too.

Now wait a minute! I think you're thinking that that six months has to be six months from the time that they come with the company.

Morris: I am.

Cutter: No. This is wrong. Any time, anywhere along in that history he gets reviewed, as I say. I don't remember whether it's every



Cutter: six months or every year, but that comes to the board of directors. The relatives literally step out of the room. I step out of the room when David and Rob are being discussed and when Ed is being discussed. Ted does, too. And the remaining directors, without any relationship, discuss this, and they can ask for information anywhere they want. They discuss this and, after they have made their decision, we come back.

But this goes on for as long as that relative is in the employ of the company.

Morris: Every six months or every year, this process is repeated?

Cutter: That's right. Now, so far, there has been no relative who has been asked to leave. But if one did come that was weak, or, for some reason, wasn't cutting the buck, why I don't think there'd be any question but that he would be requested to find a new position within six months.

Morris: I see. Now I have this picture straight. Do other top executives of the company go through this same review procedure?

Cutter: No, not by the board of directors.

Morris: Going back to the six months' idea, is six months long enough to determine whether a person is going to work out with the firm?

Cutter: Well, I think you've again misinterpreted that. That would only be your first trial. If he was a bad 'un, a clearly noted bum, why yes, you surely should know it within six months. If it was questionable, and they didn't feel they knew, why they'd probably put it over for another six months.

As a matter of fact, if he were just impossible, why I'm sure that there would probably be direct action taken before the six months. The point of this whole policy is not to make it hard to eliminate a relative, but to make it easy and painless for him and the family, so that in case a mistake is made, there will not be the reluctance to do it because it acts as a blot on the family escutcheon, if you see what I'm saying.

Morris: Yes. I'm interested in the overall concept of personnel review.

Cutter: Well, the board of directors, of course, reviews the officers of the company. That's part of their legal duty; that's mandatory. But the non-officers of the company, then, report to whatever vice president it may be. And each of them has, I believe it is, a six months' review, when those two have a personal talk about how he's getting along, and any suggestions

Cutter: for improvement, or a discussion of what may have been discussed the period previously, and what's transpired in the meantime.

Morris: Is the review held to fairly consistently?

Cutter: Oh, yes.

Morris: One reads about civil service review and military officers, for whom a fitness report is required, and periodically there is a bit of a flap because this has not been carried out. And I wondered if in industry--?

Cutter: Well, I can't say for any but our own, but it is here.

Encouraging Middle Management

Morris: Another point here was the formation of a Junior Board. Do you recall how that came about?

Cutter: Yes, I do, because I formed it myself. I invited--I don't remember how many. I think the Junior Board file is up there. I think I sent it up there, didn't I? My memo should be at the first of it as to how many I invited to my house.

Morris: That memo's not there. The first memo that's there is that there shall be a junior board.

Cutter: Well, all right then. I'll give you something on that. I did invite them to my house. And my memory is that I suggested to these men that they decide how many they wanted on the board. Or maybe I didn't. Maybe I arbitrarily suggested that they have--I don't know--let's say eleven or twelve, and that they draw straws on that first board as to who went on it from this group that I'd invited. And thereafter, as I remember, they'd elect two persons every six months, and I think they served for two years. I'm not sure of that, but I think that's it. And that has continued, and the Junior Board has, at times, been a very helpful board of very thoughtful men trying to do a good job. And, at times, its membership has deteriorated into a gripe session, and then picked itself up again when it was realized that, really, that's all they'd become, a place to air personal grievances.

Overall, though, I would say there were two short periods where it really became a carping, criticizing, non-helpful body. And there was a great pressure on me to dissolve it, from other executives in the company. And I said: "No. It'll clear



Cutter: itself up. Let's just listen to their gripes. After all, this is one place where, instead of defending ourselves, we ought to be out trying to find out what the gripes are, not just from the rank and file who are down on the benches, but from these folks who are in middle management."

So, even the griping sessions weren't lost, but they weren't as productive as the periods when the board took itself seriously as a group in a very splendid position to have a pretty wide viewpoint of the company, and to point out things which they felt would be helpful to the management of the company.

Morris: Do you recall what brought on the two particularly troublesome gripe sessions?

Cutter: No. I think it was the people who were on them. You see, they chose their own people, and I think they just got people who actually weren't very strong people and thought they should have been promoted ahead of somebody else, not strong enough to go out and quit because they didn't feel they'd been properly treated.

You know, I've known a few weak men, not in connection with the laboratories at all, but the weakest men I ever knew were two men who were most critical of their employers. Just nothing was right. Everybody was wrong but these men who were so critical, but neither of them could ever hold a decent job with a decent salary. They just were not successes.

Morris: Your point being that somebody who really strongly believes that something's wrong will take some action to correct it?

Cutter: He will do his criticizing to his boss. He will be up there just pounding the table: Look, we ought to do this! None of us ever get everything we would like to get. Even the top boss can't, because, after all, he's got to make a success of the company. He'd like to have every building he has a marble palace. He'd like to have everything in the way of pensions and life insurance and all the longer vacations and shorter hours, all the little goodies, you know. But he realizes that that's just dandy, but if he did it, why he wouldn't have a company!

So, there's nobody--I don't give a darn whether they're in industry or working for institutions or where they are--that is going to have things run the way they think they should be, the way they'd like to have them.

Morris: Were the Junior Board members elected from a list of individuals, or was it a layer of jobs?

Cutter: As I remember, I think you'll find up there in the original thing on that that they could come from any place.

Morris: In other words, they could be a superintendent in the shop?

Cutter: I think so. [Looks for file] You've got my file up there, I guess.

Morris: The full title was Junior Board of Directors? Was that how you envisioned them?

Cutter: Yes.

Morris: Along this line, were there many additions to the executive staff in the late Forties?

Cutter: Well, of course, as you grow, you have to have more supervisors. And yes, as we grew, there were many more supervisors.

Expansion of Research and Overseas Activities

Morris: I came across a reference to Dr. Ward joining Cutter in 1946 as medical director.

Cutter: Yes. Right.

Morris: Now, would he have been replacing Dr. Foster?

Cutter: I don't remember whether he was here while Dr. Foster--no, Dr. Foster must have retired about '46.

Morris: About the same time Mr. Twining did. I think Dr. Ward was here for a short while, and then there was a Dr. Robertson Clark--

Cutter: Mr. Robertson Clark.

Morris: I must have assumed the "doctor" because he was director of research. Wasn't that his title?

Cutter: Did he have that title?

Morris: He had that title in an article that he published in a pharmaceutical magazine.

Cutter: Was that clinical research?



Morris: Yes.

Cutter: All right.

Morris: So, he could be director of clinical research and not be an MD?

Cutter: Well, that would mean that he would go out and contact the physicians to get clinical work done. But he was doing that.

Morris: You make a distinction between clinical research and--

Cutter: You have a director of research, and he would be over the director of clinical research. He'd be over the director of chemical research, biological research, you see, all the different branches of research.

Morris: And was that still Dr. Winegarden?

Cutter: Dr. Winegarden was originally director of research. I believe he came here in about 1924, and he was the only director of research. His sister had worked with the laboratories. As a matter of fact, she died while she was here. She died of tuberculosis. And then, when Dr. Winegarden was graduated with a PhD, he came with us. And he was our total research department at first, and then, gradually, he hired other people. And then later, he became research and production. He retired early after that, and left here quite a while ago.

Morris: It was about 1947, then, that Cutter International was formed. Had you been in foreign trade before that?

Cutter: Oh, yes. We were in foreign trade, as I recall, before 1925. We were shipping veterinary products to Australia, for instance.

Morris: Then what made it desirable to form Cutter International?

Cutter: Well, as far as Cutter International, I think that was something that we did because an international company got certain tax breaks. I think that's probably what you'll find was the factor there.

Morris: The phrase in the article that I found was: "To take advantage of and cooperate with the federal government's program for promotion of inter-American trade."

Cutter: That's right.

Morris: So, it was tax breaks. Was the government offering any assistance at all?

Cutter: No, no assistance. It was just that you got certain tax breaks for your foreign business done through a corporation, I guess.



Morris: And it was a wholly owned--?

Cutter: Oh, yes.

Morris: Now, would this be what you would consider an associated firm?

Cutter: I guess you would, in a way. It was actually run as a division that was part of Cutter Laboratories. There was only a legal separation, and not a separation in any other sense of the word.

Morris: I see. From the sales charts connected with it, it seemed to be primarily in South America in those early years.

Cutter: Well, I think that that particular one was. I think there have been, through the years, several different international companies formed for several different tax situations, where the government has wanted to encourage trade in this area or in that area. There's been a definite tax incentive to change your corporate structure.

Morris: Is a tax incentive of this sort accompanied by any government rules and regulations?

Cutter: Oh, yes. Very often, there are rules and regulations as to depreciation and all that sort of thing.

Morris: Is it in terms of which countries, for instance, or what kinds of products?

Cutter: Oh, it could be. Yes. It could be limited to certain countries, and I presume it could be limited to certain products. Although, of course, we were practically entirely thinking of medicinal products for humans and animals. I don't know whether there was any relation whatsoever to the fact that we were in medicinal products. I don't think so. I think we could have been in making tile for a roof and been in the same area.

Morris: In the late '40s there was quite a lot of interest in public health medicine for South America. We were sending a number of public health specialists to improve things in South America, and I wondered if that was a factor?

Cutter: I just do not know. But I question it. My memory is that it was a general thing, available to any exporting companies.

Morris: Were the tax advantages sufficient to be worth any additional rules and regulations that might have complicated that portion of the business?



Cutter: The rules and regulations, I don't think, were onerous at all. My recollection is not that they were. In other words, it was just that your business had to be done with a foreign country, a designated foreign country. And the rules--I just don't remember what they were, but I'm sure there must have been rules. Otherwise, we wouldn't have put up this company. They wouldn't have had any reason to put up that tax incentive unless there were certain things they wanted to accomplish, and these were accomplished by rules that they set up.

Dr. Cutter's Manufacturing Association Leadership

Morris: You mentioned that you'd been active in the Pharmaceutical Manufacturers' Association, and I wondered if an association of that sort would have assisted in or encouraged Congress to pass such legislation?

Cutter: No, I don't think it did. It might have been, but I actually don't think it was.

Morris: You were president of the California Manufacturers' Association in '50 to '51. That's a pretty distinguished spot; I wondered when you had become active in the CMA?

Cutter: Oh, goodness, it was in the early Forties, I imagine, because I served on the board for quite a few years.

Morris: What were their major goals and services?

Cutter: Well, their major goals were to look after the state interests of manufacturers in California. They were interested in matters of taxation and legal matters. You may recall that there was quite a while--and I know it was in that period, particularly down in Los Angeles--that the politicians were blaming smog entirely on manufacturers. Entirely! And, of course, we now know that, surely, manufacturers may pollute the air, but your main offender is the automobile. But this didn't suit the politician. He didn't want to go after the many people who could be voting for him, so he looked for a goat, and went out charging on his white charger against the manufacturing companies.

Morris: This was in the Forties?

Cutter: Yes. We didn't know what smog was up in San Francisco then.

Morris: Yes. I remember. It was Goodwin Knight, when he was running for governor, who finally thought that he had to make an election speech on smog. But that was in 1954.



Morris: When you became president, were there any particular goals that you had in mind or any new directions?

Cutter: Well, no. I was anxious to keep the association zeroed in on taking care of the interests of the manufacturers, and the manufacturers alone. [Phone interruption]

Morris: While you were president of the manufacturers' association, you were interested in the--

Cutter: Well, in other words, there was some tendency of, oh, like the Pacific Gas and Electric Company wanting to join as a manufacturer, and I didn't want this because our interests would often be in conflict with the gas and electric people.

Morris: I see. In what sense did they feel that they were a manufacturer?

Cutter: Well, they're manufacturing power.

Morris: And how did this conflict?

Cutter: Well, there are many places where, if they were on the board and if they were very heavy contributors to the board, there would be a conflict of interests there. They could influence the California manufacturers not to go for rate changes. One thing that the California manufacturers did was to make your rates equitable, because the natural tendency of all of your politicians would be to put the bills on the manufacturer, rather than on other customers.

For instance, rather than on residences, because their voters own the residences. They have very few votes generated by a manufacturer, you might say. So, I wanted to have all of the clout I could have to keep the rates. Well, I didn't want to have any unfair advantage, but I wanted to have at least a chance to say my say in court without anybody on my board saying: Gee! What are you doing that for? So, that we did.

Morris: So, you did keep PG&E off at that time?

Cutter: That's right. [Phone interruption]

Morris: We were on your service with the manufacturers' association. Did you continue on active after your term as president?

Cutter: Well, at the time I was elected president, I resigned from the Pharmaceutical Manufacturers' Association board of directors, because I just felt that I couldn't take the two jobs at the same time. And so, then, after I was president, I know I did remain



- Cutter: active for some while, and quite some years later, they voted me the manufacturer of the year. But I wasn't active in California Manufacturers much longer after I was president, because I again felt that I could do more on the board back East.
- Morris: Were there particular industry-wide issues that you were interested in?
- Cutter: Oh, yes. There were lots of industry-wide problems! I don't remember just what they were. There were always problems.
- Morris: You could tell what my next question was going to be! [Laughter] One more question on the manufacturers' association--Luther Nichols was executive director. Was this when you became acquainted with him?
- Cutter: Oh, no. I'd known Lute Nichols when he was graduate manager of the Associated Students of the University of California. He was the paid head of the board of directors of the manufacturers' association. I remember I hired him there in San Francisco. He was--I forget--with some water board or something or other at that time.
- Morris: Was that the association concerned with water quality control?
- Cutter: I think it was, yes.
- Morris: Yes. There had been state legislation just passed.
- Cutter: I just don't remember about what all that was. That's going back there a little while! [Laughter]
- Morris: It was '49 when the water quality control legislation was passed.
- Cutter: I didn't remember that.

Overcoming Adversity: the Polio Vaccine Story

- Morris: Now, this brings us to the mid-Fifties when you became involved in production of the polio vaccine. Wasn't this also something that happened fairly quickly, from the time that the vaccine was a laboratory curiosity until it went into production on a very large basis?



Preliminary Testing

Cutter: Yes. Well, actually, poliomyelitis vaccine had been tried, on probably the greatest scale of any vaccine up to that time, in the year before all this trouble.

In '54, two laboratories--Parke Davis and Lilly, I believe, was the other laboratory--had produced polio vaccine. And the conclusions from that were that maybe it didn't protect everybody, but if there was one thing you could say about it, it was safe.

We now know that those two lots of vaccine used then were probably very, very low in titer. And, yes, they passed the safety test, but they didn't push the safety test. In other words, if they'd been more potent vaccines, the vaccine would have caused poliomyelitis then, and it would have been realized that those tests were inadequate.

But the trouble was that the vaccine produced then had not been potent. It was not very potent vaccine. And so, it was safe. So then, later on, with better methods of handling the virus and all, why the potency of the vaccine came up. And it was only the occasional very sensitive infant--well, not only infants, since on some occasions it was an older person, but usually infants--who came down with the polio from this vaccine.

Morris: This is in the clinical tests?

Cutter: No. I mean after then, when they decided to go ahead with the 1955 injections. It was only after it was used in big quantities.

Morris: Four hundred thousand was the figure that I came across.

Cutter: I think that's probably for 1954.

Morris: The U.S. Public Health Service estimated that four hundred and one thousand children had been vaccinated by the vaccine before it was withdrawn in April of 1955.

Cutter: I see. Yes. And, you see, I've forgotten the numbers now, but it was only a very occasional child who got the vaccine--you might say the exquisitely sensitive child, sensitive to the virus--who came down with poliomyelitis. The average kid got the vaccine and probably had a whole of a good protection from it and had no reaction to it.

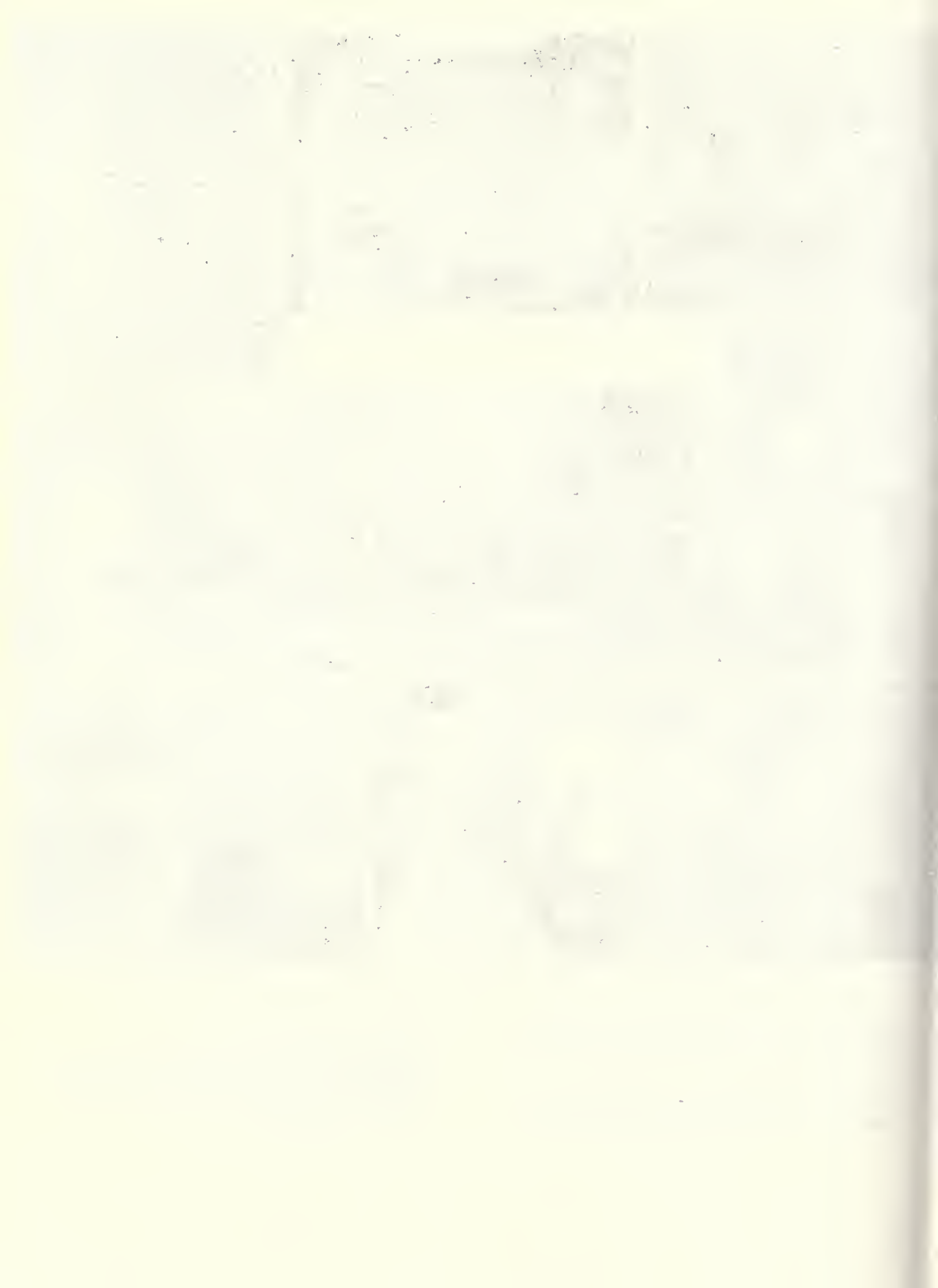
Morris: Now the vaccine that was produced in 1954, was that the same process that you used in 1955?





Careful Preparation in Pharmaceutical Manufacturing: Polio Vaccine, 1955

1. One of the first steps in the production of polio vaccine is the preparation of monkey kidney tissue on which strains of live polio virus will be planted. Here two technicians at Cutter Laboratories prepare the tissue. All work is conducted under the most rigid of hospital sterility techniques. Left to right: Helen Rivola, Verlene Patterson.
2. Seeding five liter Peritaky flask with monkey kidney cells for tissue culture growth. Left to right: Bruce O'Garra, Pearl Knowles.
3. Ralph DeGale in Tissue Culture Incubator.
4. In order not to have any impurities in the polio vaccine, the material is filtered and refiltered a number of times. A technician at Cutter Laboratories adjusts the flow of the vaccine so that it will go through the sintered glass filter needles evenly. Gene Santos.
5. "Bottles" taken are inoculated and placed in drums which rotate slowly in incubator rooms for about a week. Temperatures in the incubator rooms are carefully controlled and recorded. Edith Ruth Pollakshon.
6. A Cutter Laboratories technician calibrates the dilutions for potency testing as carried on by the control department of the Berkeley, California plant. Margaret Davis.
7. Filling operation—filling the individual vaccine bottles.
8. Final visual test of the vaccine for clarity.
9. Richard Taylor, four, has first care at receiving his polio vaccination from Cutter nurse, Shirley Nesbit, as his brothers (left to right) Paul, five, and Stanley, seven, wait their turn. As a part of the company policy all Cutter employees' children received from donations of the polio vaccine immediately following the report of the polio vaccine test. The entire immunization program was carried on at the Berkeley, California Laboratories under the direction of Walter S. Ward, M.D., medical director for the company. Gene Taylor, father of the children, did early research work on polio vaccine for Cutter and is a group leader in charge of polio research.



- Cutter: It was a Salk vaccine, yes. But it was produced by different laboratories and in different batches. You see, there were certain batches of ours which obviously were more potent than others. But they all passed the supposedly absolutely perfect safety test.
- Morris: Who had developed this safety test?
- Cutter: I'm not sure whether that came out of Salk or from the National Institutes of Health, the licensing body. It would have to be approved by the U.S. government licensing body.
- Morris: Yes. Well, this was a point that I wanted to ask you about. On April 12, NIH licensed six producers of the vaccine, one of whom, of course, was Cutter. Then on April 27, also 1955, NIH recalled all of the unused vaccine. Now that's a two-week period, so that you must have already been in production.
- Cutter: Oh, well, we were in production ahead of that. We had these lots before April 12. We'd been working like beavers for over a year on it.
- Morris: I still don't understand the NIH licensing procedure. Licensing, to me, means that you are issued a license that you have the know-how and the equipment to do this, and then you go ahead and produce it.
- Cutter: Well, no, not only that. Each individual product has to be licensed, not just your laboratories. But that has to be licensed. They have to assure themselves that you have proper equipment and premises and people that are competent. But then, each product has to be licensed.
- Morris: But you're already in production in commercial quantities on the day you get your license, and that's your permission to ship?
- Cutter: You may be, or you may not be. Usually, in a case of this kind, you would be all ready. You'd have your batches ready to go and you would have sent the lots in to them to be tested. Now whether or not this was done, I just don't remember. Whether they received lots for testing, I just don't remember.
- Morris: Where did the urgency develop to push this?
- Cutter: Well, I think that the main urgency was coming from the Polio Foundation, the Poliomyelitis Foundation.
- Morris: To get the government to underwrite this?



Cutter: No. As you know, Basil O'Connor was the head of it then, and he was very close with Roosevelt. And, of course, he--well, I don't think the whole blame should go on him. I think we all thought that the vaccine was safe. I mean, here we had four hundred thousand, or whatever it was, the year before, vaccinated with presumably the same vaccine.

The only thing that came out of that was that we couldn't be sure how potent the vaccine was, how much it prevented polio, but you could sure say it was safe. So, we all thought that vaccine which passed these tests was safe.

Morris: Did you intend to increase the potency?

Cutter: No. It wasn't intended to increase the potency at all. But, as you go along, you're very likely to get one lot more potent than another. These are viruses that you're growing and tissue cultures, and some would be more potent than others.

And apparently that's what happened with this one or two-- I've forgotten, but I think there were several lots involved, but not all of the lots. We had more trouble than anybody else, but the others were actually--

Morris: All six manufacturers?

Cutter: I don't know about all six, but let me just say others had the same experience. Certain lots of theirs were--let's say they settled lawsuits.

Morris: Did the other manufacturers' products that resulted in illness result in lawsuits too?

Cutter: Yes, they did.

Morris: And were the other vaccines also taken off the market?

Cutter: Oh, yes. They were. And some of them then later put back on, after checking on who had received it and all. Actually, it amounted to a clinical test.

Morris: That 1955 production?

Cutter: That 1955. In other words, if they'd put it out and it hadn't caused poliomyelitis, well, they had to deem it safe. [Laughter]

Morris: And they would have continued on. Were these four hundred thousand people who were vaccinated with the Cutter product individual patients of individual doctors, or was it a public health thing like the later community-wide inoculation programs?

[Dr. Cutter's answer was lost when the tape ended and he had a luncheon date to keep. Ed.]

The Polio Foundation and the Government

- Morris: I know it's not your favorite topic, but there are a few other questions I'd like to ask to finish up our discussion on the polio vaccine crisis. I've talked a bit with your brother Ted about his views on it. The one question I haven't asked is: Were you or any of the people in the research department in touch with the Polio Foundation's work in developing a vaccine before you signed a contract to make the Salk vaccine?
- Cutter: We were one of the principal suppliers of gamma globulin to the Polio Foundation during the time that they were working on the poliomyelitis vaccines and we were in touch with them all the time about everything that was going on scientifically because they were looking to us as being one of the manufacturers of vaccine. I presume it has come out to you in the history that we were pioneers, really, in the tissue vaccines through our work in the veterinary field. So, yes, naturally, we were in on all of this and all through their work, why, they considered us as being one of the sources of the vaccine when, as, and if it was developed.
- Morris: Were you comfortable with the state of their research in the potency and safety tests?
- Cutter: I think that's the crux of this whole matter. I think that we were, they were, the United States government was, the Public Health Service, the Surgeon General, the--whatever it was called then--Division of Biological Science: that is, those that okayed its production and regulated the safety--I think that all of us thought they were safe because of the wide tests which had gone on the year before. At that time, the general consensus was, Well, perhaps we can't be sure of the potency of the Salk vaccine, but we can surely be comfortable in the safety of it.
- Morris: Because there had been good results the previous year?
- Cutter: Well, probably no other product had ever been given to the hundreds of thousands of patients that this had on a trial basis and not one of them had come down with poliomyelitis or had any serious untoward reactions. So, the conclusion was, The product's safe. You couldn't be sure how potent it was, how good the immunity was that would follow it, if any.
- Morris: Did you then participate with the Polio Foundation and the government people in discussions of whether or not these tests were adequate and that you could proceed, you and the other manufacturers?



Cutter: Well, that's the whole basis of it, yes. You wouldn't have thought of proceeding--they nor we nor anyone else--unless they had been confident that these tests were adequate, but they weren't.

Morris: You mentioned that you had to wait, that the vaccine was not released until the government said it was all right to go ahead.

Cutter: That's right. All producers in this type of thing are licensed and until your license is granted, you can't produce it.

Morris: I understand that point. What I'm interested in is: Do the government agencies responsible for issuing this license consult with the manufacturers and researchers in making their decision that it's all right to proceed?

Cutter: Everybody, yes. Everybody. Of course.

Morris: When the license was issued and the vaccine was released and the adverse reactions occurred, they weren't all from Cutter vaccine, were they?

Cutter: That's right. No.

Litigation

Morris: Then why was Cutter the target for--?

Cutter: Why did we have so many more cases than the others?

Morris: Yes.

Cutter: Most of the others had deaths from the vaccine, but on a much smaller scale than did Cutter, because we were "firstest with the mostest."

Morris: In other words, you were producing the largest amount?

Cutter: We produced and delivered more vaccine, in the early states, than did any other manufacturer.

Morris: Because you'd had more experience in tissue--?

Cutter: Because they'd all expected that.

Morris: In the Old Timers Room, the reports on the court actions that followed the adverse reactions to the vaccine listed Wallace Sedgwick as your attorney and Melvin Belli for the people suing. Was Sedgwick selected specially to handle these cases, or had he been your attorney?

Cutter: He was selected by the insurance company. He was not our attorney at the first. He became that later, after we had handled the cases.

Morris: Did the insurance company pick Sedgwick because of Belli's reputation?

Cutter: I don't think so. I think that Sedgwick was just well known as a defendant lawyer, well thought of.

Morris: There are notes also in the files indicating that the testimony was carefully prepared; I wondered if this was for Mr. Sedgwick's questioning, if this was actually used in the questioning of Cutter people in court, or if it was sort of a background thing?

Cutter: Well, any time you're going to have a trial, why, the whole thing has to be carefully researched and that's what this was. They have to know what they're talking about.

Morris: So this was as much to prepare the attorney?

Cutter: Oh, yes, sure.

Morris: He knows the legal part about it, but Cutter people know the scientific part of it?

Cutter: The scientific part, yes.

Morris: Did Mr. Belli come up with unexpected questions?

Cutter: No.

Morris: You received many encouraging letters from physicians and pharmaceutical companies and, I guess, the general public, too. Were you prepared for this kind of support? Did you expect it in any way?

Cutter: Well, we hoped that we had a good reputation with the medical and allied professions. However, it was a bit overwhelming when so many letters came in. As a matter of fact, I answered every one of them personally and kept all of the secretaries and all of the executives busy answering those letters with letters of appreciation.

Morris: The press covered the whole situation pretty thoroughly.

Cutter: Well, I would say they laid an egg on the thing. If there ever was an egg, if ever the press extinguished itself, it was in this. Walter Winchell, as I remember it, who was then

Cutter: the overall radio commentator, the one most listened to, came out with some cock-and-bull story that he had information that we had left the refrigerator doors open and that was what the trouble was. Now, had we left the refrigerator doors open, the only effect it could have had would have been to have made the vaccine more safe, less potent. So, that was how valid his explanation was.

Drew Pearson, who was the most-read newspaper columnist of the day, had another cock-and-bull story--neither of them had any foundation in fact!--that we had reversed the air conditioner in one of our processing rooms so that, instead of drawing in pure air and discharging the air outside, it was drawing in impure air from the outside into the room and discharging it through the filters. So, I mean the press was most irresponsible. They seemed only interested in getting a lurid story of negligence and misconduct.

Morris: Did any of them turn up in person, wanting to talk with people here to get the information?

Cutter: The first few days, when we didn't have any idea what it was, they turned up en masse and we had a press conference in the downstairs lobby and I learned about press conferences then. I was misquoted and all I could say is, We don't know. Well, they tried to put words in my mouth and did put words in my mouth and a photographer hovered around, taking pictures of me. In one of the magazines, which was the epitome of yellow journalism at the time--I think it was called Confidential--one time my picture appeared and he had gotten me in the midst of a--I don't know what. But if I have ever in my life looked like an ogre, I did in that picture. So, the whole thing was to make us look like people who wouldn't think a thing about killing a child if it meant a dollar to us. It was really terrible.

Morris: Did this have an effect on morale of employees?

Cutter: Oh, yes, sure. You can't have a terrible thing like that happen without it having an effect. And remember this, that most of our folks who had children had had their children vaccinated by us with this very vaccine. So, there was also a matter of fear and a matter of worry. Here they'd spent their working life to make fine products and then to see these terrible things come out in the newspaper and to worry about whether the plant was even going to continue.

I must admit that I had my fingers crossed at times. As a matter of fact--I think I've mentioned this--the laboratory hired an attorney, John Elliott Cook. I remember, in the early days of the suits, when they were piling in on us, I had gone up for

Cutter: a weekend to Dutch Flat to visit some friends there. He was at Tahoe, at Glenbrook, and I drove up there to be with him. I can remember being on the beach and his saying, Bob, is there anything you could do? Could you sell the laboratory for anything? Isn't there somebody who would want to buy it? Can't you get out of it somehow?

Of course, those were very encouraging words.

Morris: From your own attorney! [Laughter]

Cutter: From our own attorney. I said, "John, we're not going to sell it. We're going to come out of this right. We're not going down the drain."

Morris: Did you think there was a possibility that it might wreck the company--the suits and the effect on sales?

Cutter: Oh, goodness, yes! No company had ever been hit by anything worse in the history of American business or American medicine.

Morris: Because of the size of the judgments?

Cutter: The smallness of our company and the size of the judgments and the number of them.

Morris: Why was this the first time that court judgments had risen to this level? Why was this the first crisis of this proportion?

Cutter: Well, because this had killed children and this had injured children, terribly injured them, basket cases some of them. Even though the juries held us innocent of any negligence or incompetence, we were held, on this matter of implied warranty, to be responsible for it. So, we had to pay far more than the limits of our liability, you see, and we didn't know what amounts we would have to pay. As a matter of fact, we made the first large scale settlement agreement with an attorney in Oakland. [Laughter] He was a member of the Grandfathers' Club and so was I and so was Mr. Milton Selby. The three of us, one evening, got together and decided that it was going to be better for all concerned if there was a settlement.

Morris: But without going to court?

Cutter: Yes, without going to court. He agreed to lump all of his cases in one payment then and he would decide among them who got what. Then it was later that we made the same kind of a settlement with Belli.

Morris: Of the cases that he was handling?

Cutter: The cases that Belli was handling.

Morris: Did Belli take all of his cases to court?

Cutter: No. He only took some of them.

Morris: Did your insurance people assist in this at all?

Cutter: Well, originally, they did assist, but they reneged on it and we took over the handling of all the suits, including paying for the legal fees. But after this was all over, we had an out-of-court settlement with the insurance companies for their reneging. They didn't want that to go to court and have us sue them for reneging, so they came to a sizable settlement with us.

Morris: In fulfilling the terms of your insurance coverage?

Cutter: Yes. And also that they undertook the defense of all suits and the payment for attorneys' fees and court fees.

Morris: That was part of your original insurance coverage?

Cutter: Right.

Morris: I found in the Old Timers Room this letter you sent out commenting on this business of the implied warranty. Was this the first time that the question of implied warranty had been applied to a medical product?

Cutter: I'm not sure that it was the first, but it was a benchmark case.

Morris: When you wrote the statements, you talked about the concerns in many medical products, like hepatitis in blood transfusions and some of the reactions to things like aspirin and penicillin, indicating that this could happen in other products. Was your prediction correct?

Cutter: Right now, I've got over here a direction sheet that I'm working on with our attorney and our physicians, trying to point out in every way it can be said that this product may contain hepatitis virus and it should only be used after giving it or withholding it is given full consideration. Further, we're probably going to suggest that the physician discuss this with every patient, or the patient's family in the case of a child, to show them there is a risk, but that the doctor feels there is a greater risk in withholding the product. So, should the patient come down with hepatitis, he's not going to be surprised by it and he's going to be far less resentful than if he'd been treated unaware.

Morris: Do you think that was a factor in the polio, that people's expectations were--?

- Cutter: Oh, sure! Yes. But further than that, in the polio--just let's consider you or me. If we had a child, a fine, wonderful, promising child, and that child was crippled anywhere from having some slight weakness in an arm or a leg all the way down to be a basket case, we'd just react in the same way. We'd want to get at somebody and we were the only somebody who was there.
- Morris: Yes, I can see that. Finishing up the press part of it, in the early Sixties, Business Week, the Wall Street Journal, and other publications wrote fairly lengthy stories on how the whole situation was handled once you had retrieved your position.** Were they trying to make amends for the sensationalism in that earlier period?
- Cutter: No. Actually, they had been less sensational than the radio and the daily press. Goodness! That's eighteen years ago, so I can't say whether Time or Newsweek or--I guess that was after Literary Digest! [Laughter]--I can't say which one of them had which article. But I have no memory of any one of them being particularly out of line as I have of Drew Pearson and Walter Winchell.

** "How Cutter Came Back," Business Week, February 24, 1962.

BUSINESS WEEK

February 24, 1962

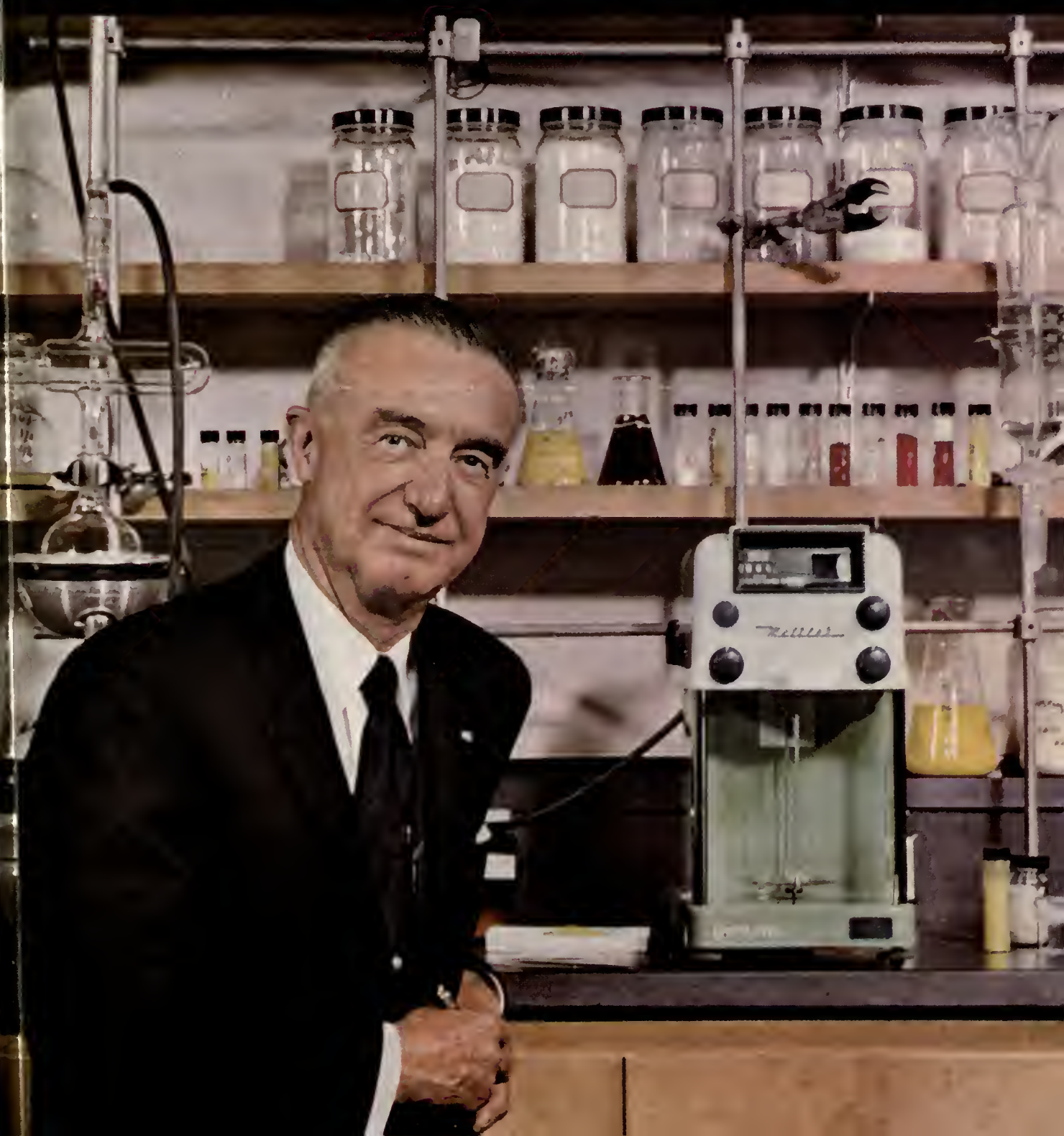
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Why all the fuss about automation?

Page 46

Below: Dr. Robert K. Cutter leads Cutter Laboratories on the long road back from the polio vaccine debacle [Companies]



gators reported, and later testified under oath, that they could find no evidence of deviation from the manufacturing and testing procedures laid down by the government.

Cutter was cleared of negligence but still faced long uncertainty over the extent of its liability in the 60 lawsuits claiming damages of \$12-million. Not until last December, when the bulk of remaining claims was satisfied for \$1-million, was the uncertainty dissolved.

The costs. The overhanging liability was probably the heaviest, but not the only drag on the company. To move into polio vaccine, the company had accelerated its withdrawal from production of gamma globulin and a patented blood extender. Now it had to pour \$1.3-million of polio vaccine inventory down the drain and bolster other departments to make up for the unexpected loss of sales volume. Other costs associated with the vaccine episode, but exclusive of the damage settlements and legal fees, exceeded \$1-million.

IV. The road back

Instead of nursing their wounds, the Cutter brothers and their associated executives undertook an extensive development program. They didn't have to face the struggle alone. On a day when the adverse publicity hit a peak, the mail brought a letter from American Trust Co. (now Wells Fargo Bank) offering to extend Cutter's line of credit to \$1-million. Mutual of New York agreed to a loan of \$3-million.

Moral support. The Cutters were flooded with letters of sympathy from doctors and hospitals familiar with their products. From their competitors came a welcome vote of confidence when the American Pharmaceutical Manufacturers Assn., with the federal investigation in full stride, broke its succession pattern to name Dr. Cutter its president-elect. The company even found evidence that one competitor instructed its salesmen to defend Cutter's reputation if customers discussed the polio vaccine debacle.

Although the market value of Cutter stock sank from 14 to as low as 5½, there was no flight of investors from the stock. Within the year the number of stockholders rose from 900 to 2,000, many of them doctors, and the company's sales climbed briskly. An analysis of last year's sales showed that doctors and hospitals had increased their use of Cutter products by almost 60% since 1955.

Acquisitions and expansion. Cutter

was in process of acquiring a couple of small drug companies when the polio vaccine episode occurred. It went through with these, acquired five more in the intervening years, and expanded its existing facilities. Capacity of the branch plant in Chattanooga, Tenn., which makes intravenous solutions for hospitals and disposable equipment for injecting them, was doubled. The hospital supply production line was automated. A new laboratory for pharmacology and organic chemistry research was built.

To support the new research laboratory, Cutter poured more and more money into research. In the past five years, this has averaged 50% more than the company's after-tax earnings, or roughly 8% of its pharmaceutical and biological sales. From the Merrell Laboratories in Cincinnati in 1956 the company lured Dr. Marcus G. Van Campen, an organic chemist, to become director of research.

Heavy research. Intensification of research effort was undertaken with a definite goal. Cutter had developed over the years a catalogue of some 700 biological and pharmaceutical items and related equipment for administering them to human or animal patients. Only a tiny fraction of these could be classified as pharmaceutical specialties, the high-volume, high-profit items that move across drugstore counters as ethical drugs or patent medicines. The stepped-up research was intended to rectify this deficiency.

Harry R. Lange, marketing vice-president at Cutter, has high hopes for the three products of research that are now undergoing tests.

New sales setup. To prepare for the new products and to bolster the marketing of existing lines, Lange overhauled the Cutter sales organization. In place of one monolithic sales staff that called on hospitals, hospital supply houses, physicians, veterinarians, and druggists, he now has three—hospital supplies, veterinary products, and pharmaceutical specialties.

Financially, the company tightened its belt with the most rigid economies.

Cutter Laboratories is still no gold mine. Its after-tax earnings last year were about 2.8% of sales, compared with an average of 10% for the industry. But with the bulk of its polio vaccine liability out of the way, and with the prospect of tax savings from loss carryback, Finance Vice-Pres. William R. Thomas says earnings should improve. After the seven-year uphill struggle, the years ahead look like a coaster ride.

6. SUMMING UP

The Microscope, March 1957; a report on the dual trust.

1956 ANNUAL REPORT

Shows Dividends in Dollars and Lives

1956 Annual Report

Within the pages of the recently released 1956 Annual Report is found an interesting accounting of the Lab's stewardship in two important fields.

On the one hand, cold statistics and Dr. Cutler's optimistic annual letter reflect an enthusiastic picture of the Company's financial health. This is its basic obligation to its employees and stockholders.

On the other hand, an accounting is also made of its more basic responsibility to the health and welfare of a nation and its neighbors. Bits of ticker-tape and newspaper clippings combine to tell of dividends achieved by medical science when nature goes into the red.

It matters little whether this dual reporting is intended or whether it grows out of a subconscious responsibility felt by the individuals involved in its

production. What is important is that by actually going one step further than financial reporting, it touches on the "Espirit de Corps" of our organization and our industry. It is most certainly a reminder that while a basic responsibility exists to produce a profit, a more basic trust exists in the form of lifting the individual above the constant threat of death and suffering.

★

Growth and Change Since the Mid-Fifties

- Morris: This business of recalling products has continued to be a hazard, not only in your business, but in all kinds of manufacturing. I'm puzzled as to why there should be continued need to recall products when, supposedly, our technology has improved so that inspection and quality control, presumably, should be better now than they were before.
- Cutter: It definitely is better, but, on the other hand, the problems of detection of problems are greater.
- Morris: As products become more complex?
- Cutter: That's right. Yes. And I think, too, it's all part of your consumerism thing. In the past--let's take the automobile industry, for instance. If an axle of a car broke, well, the fellow whose axle broke, well, so it broke and so he was injured and so forth. He didn't think of reporting that to any government agency or Nader or even the automobile company. It was just an act of God. But now when anything happens, why, the first thing anybody thinks of is, Well, who do I complain to? So, you're getting a great deal more in the way of developed avenues of complaint which allow anything which is really out of line to become evident to the manufacturer. But, in the past, he probably didn't know a darn thing about it.
- Morris: In general, then, would this contribute to the improvement of products?
- Cutter: It's going to do both. It will improve products from the standpoint of quality control efforts and it will hinder products from the standpoint of progress. Everyone will hesitate to make change, any change of anything which has been reliable in the past. They won't want to change a nut, bolt, or thread.
- Morris: That's a good point. Did the polio crisis lead to major changes in general laboratory policies or decisions on how the company would--?
- Cutter: Well, yes and no. We had a situation here which was entirely a different situation than we had looked at at the beginning of that terrible year. Here we were, about to embark on polio vaccine, and we had done a wonderful job of producing it in quantities and quality which were looked up to and admired by the Polio Foundation, the United States government, and the other manufacturers. And all of a sudden, this came crashing down on top of us. Not only were all the costs we'd put into that vaccine down the drain, but there were the costs of recalling it,

Cutter: the costs of getting it back, the damage to our reputation, the fact that we didn't feel we could even continue to produce the vaccine.

This, of course, made us change many, many things. Many things that we had hoped to do, we couldn't even think of doing and we had to do other things that we wouldn't have planned for. Yes, of course.

Morris: Can you recall specifically what--?

Cutter: No. I'd rather not get into that.

Morris: All right. Looking back over the years, the major thing that seems to have happened in the years right after 1955 is that your total sales went zooming up. It was also about '55 that Harry Lange, who'd been vice-president for finance and marketing, shifted over to spending all of his time on marketing. I wondered if this was a decision--?

Cutter: Not particularly, no. It had no relation to that. We increased our sales of solutions. We increased our sales of plasma fractions. Our research department brought out new and fine products --particularly in the plasma fraction field. And, besides that, we made a number of acquisitions, some of which turned out very, very well and some of which we've since dropped for one reason or another. But, overall, our acquisitions gave us a broader base to withstand what we didn't know what would be our liability in the polio thing. Furthering our efforts in sales and advertising of solutions and our research on fractions all came in to give us this greater sales index.

Morris: The acquisitions and the new products must have taken a fair amount of capital. When you were in a bind financially because of the judgments on polio, how did you both pay the judgments for polio and also have enough resources for the acquisitions? That seems like a very complicated financial situation.

Cutter: That's right. The Wells Fargo Bank, among other things, stood by us wonderfully throughout this whole problem and never once faltered in their confidence in our ability to come out of it. Then we also had long-term borrowing from life insurance companies and, later on, issued stock then came out onto the over-the-counter market and, later on, into the American and Pacific Stock Exchanges. We just worked like beavers to do everything that we could to put ourselves on a firm basis.

Morris: You say Wells Fargo stood by you. Did they assist in arranging some of these other financial things?

Cutter: Well, yes. Of course, any financial things that would be taken up with us, why, we first would advise Wells Fargo when we had

- Cutter: any thought of it. Anybody who was considering doing anything with us financially would naturally go to Wells Fargo. So, yes, they would be right in the midst of it.
- Morris: Was there any reluctance from your other sources of funds because of your involvement in the polio crisis?
- Cutter: Well, there was anxiety, of course.
- Morris: Did you find you had to pay higher rates or have stronger--?
- Cutter: No. Wells Fargo carried us through on prime rates right straight through.

Chief Executive Responsibilities

- Morris: That's a remarkable vote of confidence throughout. You mentioned at one point that you had found business journals very helpful
- Cutter: But, you see, what I mentioned there--you remember I came in as a medical student and originally was in on the scientific side of it. It was then that I began to realize that in addition to my scientific training, I had to learn something about business. This became particularly acute when Mr. Rahill, the general manager, died in 1930 and my father was taken sick and never came back into the laboratories. At that time, actually, there just weren't hardly any business magazines. A magazine called System was one of them and there was another called Factory and that was about it in business magazines.

I think I mentioned that I had to study accounting by myself at home. But I just didn't know anything about business. Now, a young man coming on now, unless he's careful, he'll spend too much of his time reading too many different pieces of literature. There's so many crowding for his attention.

- Morris: So, you can go from too few sources to too many?
- Cutter: We have gone from too few to too many. It's the same thing in the medical field. The poor physician! He can't possibly begin to keep up with all that's happening in medicine and, particularly, being reported in all the different specialty medical and scientific magazines. It's an utter impossibility.
- Morris: At any point, did you put somebody to work screening all the medical journals and all the business journals to find what's of value?

Cutter: I put them to work screening the medical journals because it was just my interest. Even then, there were many, many more medical and scientific journals than there were business journals and my natural inclination was to get into those and I found when I got into them, I spent too much time on them. So I asked Dr. Foster, who was our medical director, to mark those parts in the medical and scientific journals, the articles which he felt would be of importance. The business journals I did by myself. I did every bit of that. I did them page by page, as well as any books that I could find on management.

Morris: Do you recall any that were particularly helpful or any ideas that were really useful?

Cutter: Oh, everything I got out of them was useful. There was a handbook of management, put out, I believe, by a man by the name of Alford, which was very helpful. Also, I even had to go into patents and study patents, because that was important at that time. While I have no delusions of being a patent attorney, I still can talk intelligently with them. I still can go over claims that have been written and suggest deficiencies in them and improvements in them. But that's something I had to get! [Laughter]

Morris: Yes. One doesn't normally think of all the respects the chief executive must be familiar with. Having studied these things yourself, then you began to bring in some people to handle them specifically?

Cutter: Right, as we could afford it. For instance, you were asking about what you get into. I remember, in the maintenance end of it, particularly the janitorial end of it--while you wouldn't think of that as being important now, by golly, what we spent for it was! I not only got books on it, particularly from the educational schools--that's where the better work was on it then as to how many square feet a man should take care of and how often should windows be washed and all that--but I actually made a table of it.

The things I did then, the functions I covered, as I look back now, are absolutely inconceivable, how in the devil I did it! Of course, I was very, very young and I spent long hours here and I took work home with me. This idea of eight hours, five days a week had no meaning for me. I was down here early and I left late and I worked at home. Well, I had to! I had to! This whole thing had fallen on my shoulders and I had to make it work. I had to cut costs. I had to know what was going on.

Morris: Through those years, did you still find time to go off hunting and camping?

Cutter: Well, I would do that on occasional weekends and I would usually take a two-week vacation. Two weeks was what I considered my vacation. Now, with the family, we had a family home--my grandfather had a couple of cottages down in Santa Cruz and my family would go down there. I would drive down there Friday night and come back here Monday morning, but two weeks was the actual vacation away.

Morris: But you did take that. I'm interested in the fact that you did take time for yourself, even though in small batches, rather than just working on through because there were so many things to be tended to.

Cutter: Sure, lots of times I'd have to come down here on weekends. I don't mean I never did anything else, but that was the exception, that I'd go down there, certainly, Sunday.

It seems to me, when I first came to the laboratories as a boy, we were working six days a week, and eight hours at that. When I worked in the factory at Hoberg Mills during one of the summers, that was ten hours, six days a week, which was the usual then. But, as I recall, we were eight hours, six days a week. Then, sometime along the line, we dropped off Saturday afternoon. Then we dropped off Saturday morning and took a longer day somewhere along the line, partially to make up for that, and then, later, we just went to the eight hours a day, forty-hour week.

Morris: Because other companies in the area were doing it?

Cutter: It was just the general tendency. Just why, I don't remember.

Acquisitions

Morris: Going back to acquisitions, the first place you went was into plastics firms?

Cutter: The first acquisition we had was Plastron Specialties.

Morris: That's right. How did you locate companies to acquire?

Cutter: Well, that particular company was doing a very good job supplying us with the plastic tubing which we needed for our intravenous sets and they needed capital. It was a very small company. Actually, it was, at that time, operating in Los Angeles in what had been two stores, thirty-three and a third feet wide. Then, along there--I don't know exactly when--we bought Pacific Plastics because they were doing an excellent job with the injection molding of our parts for that same thing. We took them

- Cutter: over and they were, at that time, operating in a small--now, I don't mean a single-family one-car garage--but what had been a small, neighborhood garage.
- Morris: And in that kind of a facility, they could produce in the quantity that you needed for your solutions?
- Cutter: Sure. We didn't need very big quantities then. [Laughter] At that time, the sets were not disposable sets. They were used over and over. We were just getting into disposable sets, so that took quite a period. Of course, now, why, nobody uses anything but disposable sets. But that took quite a period when they were preparing their own sets.
- Morris: Then the other plastic companies were Plasbond--
- Cutter: Oh, that was a company we never should have gotten into. It was a small thing and we were only into it for a short time and then abandoned it, sold it.
- Morris: How about Olympic Plastics?
- Cutter: Olympic Plastics we got because of blow molding, bottle molding. But, for one reason or another, that just never did work out and that was eventually sold.
- Morris: Then there was Resiflex.
- Cutter: Resiflex was producing various trays, not all confined to plastic, disposable trays for surgical procedures like lumbar punctures and catheterization and urinary drainage bags, that type of thing. They have been enlarged and now are merged into Cutter Laboratories.
- Morris: Are now a division of Cutter?
- Cutter: Yes.
- Morris: So that that was probably the most successful relationship?
- Cutter: Well, we had others. We took in Hollister-Steir, you see, and that's been very successful, and Haver-Glover. First, Ashe-Lockhart and then Haver-Glover and then we put those together as Haver-Lockhart and carried them along that way.
- Morris: That was developing the veterinary capability which Cutter had had from the beginning.
- Cutter: That's right.

- Morris: When you started acquiring plastics firms, then you were diversifying into another field. Did some of these companies continue to produce products that weren't used by Cutter?
- Cutter: They still do, except Resiflex. But the plastic companies produce more for others than they do for Cutter Laboratories.
- Morris: And they handle the sales on those other things?
- Cutter: Yes.
- Morris: I came across a reference in one of the Microscopes to one of the companies you acquired being the one that marketed the hula hoop.
- Cutter: No. That's not so. That was an error.
- Morris: Were the people in these companies ever a reason for acquiring them?
- Cutter: Well, you never get a company where you don't hope that the people will work out well. I mean, you'd much rather have good management than anything else. That's the most important part.
- Morris: In some of the small plastics companies, would one of your reasons for acquiring them be that they had a person in their company who you really thought was great and would like to have?
- Cutter: Let's say they were both small companies, one-man companies. In one of them, the man who was running it then is still running it now. In the other, as soon as it started to grow, the man who was running it couldn't grow with it and he's not running it. He hasn't been with it for a long time. He just couldn't grow with it.
- Morris: In the veterinary acquisitions, which were close to what you'd been doing at Cutter, did any of those people come on your board or anything like that?
- Cutter: Not on the Cutter board. When we first took over Ashe-Lockhart, Cliff Haver, who was Haver-Glover--there was no Glover--was continued on on the Ashe-Lockhart board. As a matter of fact, we wouldn't have bought Ashe-Lockhart unless we had hoped that we could get Cliff Haver to come along, because up there they had cooperated very closely.

Lockhart knew he had cancer and he was more interested in having somebody he had trust in take over his plant and take over his people. He refused a higher offer from another company than we were able to offer him. So, he remained on the board as long as he lived, which wasn't very long. Cliff Haver, who

- Cutter: was then well along in years, after he saw the way we were working with Ashe-Lockhart Laboratories, asked if we would have any interest in buying his company. He thought that the two companies should go along together and he had nobody who could follow him in management. So, that was what we had hoped and that's what occurred.
- Morris: I come across a company called Corn King and a reference to Specialty House.
- Cutter: No. It was just Corn King. They were in animal medicines and feeds. It was not a specialty house. I don't know where you got that.
- Morris: Did Corn King contribute materially to the company?
- Cutter: No. That was one of those--we came out of it all right, but it was not one of our better efforts.
- Morris: You said earlier that one of the toughest jobs in business is to decide to discontinue a product.
- Cutter: Right. Or anything that you've gotten into, or sell another company.
- Morris: That was my question. Does that apply to the companies?
- Cutter: Still applies, always! It's a lot easier to go into everything when everybody's enthusiastic about it and all. But when you're going to drop a product, or sell a company, or divest yourself, that means you've made a mistake. We all just kind of don't like to admit that we've made a mistake! [Laughter]
- Morris: That's true. Do you then bring in an outside financial person or get outside advice in making your decision?
- Cutter: Not necessarily. Often it's so clear, that you don't need anybody to tell you you've been dumb. [Laughter]
- Morris: Then is it difficult to find a purchaser for that company?
- Cutter: Well, that just depends on what the situation is. Sometimes there's somebody just anxious to have it. Sometimes you just liquidate it. That's really what we did with Corn King and came out well with it.



Overseas Operations

Morris: The other area of expansion, as far as organization was concerned, was overseas. You had a Canadian branch as early as 1947 and then, beginning in 1954, I find a number of other--is it branches that you set up, or marketing--?

Cutter: Well, there were different things. Some were branches, some were warehouses, and some were agencies. So, it's just a natural growth. We were trying to expand into the foreign fields and some places, as would always be true, we were more successful than others.

Now, you asked here about Cutter Lab Overseas Corporation, the Japanese corporation. Now, actually, why did we select Dr. Ward on that? Well, because he was a physician? Actually, no. It was because we licensed the blood plasma corporation in Japan to produce blood fractions. We brought over some of their men here to our plasma fractions plant. We sent men over there to help them. We licensed them. They paid us a royalty and, at that time, actually, we set up this plant. It was for disposable injection equipment. So, Dr. Ward was just more familiar with the Japanese situation, so that was the reason he had it.

Now, sales have been going along very well in the foreign field and we hope that they will, in the future, go even better.

Morris: Is there anything, particularly, from the overseas business that has been useful in developments here? In other words, are there special needs or research ideas coming from overseas that are useful?

Cutter: Not too many. We wish there were, but actually, no. There are not very many. We have gotten a product from Italy, Pergonal*. When you hear of quintuplets and so forth, this has often been the guilty product. [Laughter]

Morris: Again, does the possibility of a multiple birth detract in any way from somebody wishing to be--?

Cutter: From the product? Heavens, yes! Sure. I mean, here's a couple who haven't had any children and this product is often quite effective and that's the problem. It's often overeffective. Instead of giving one child, it'll give anywhere from twins to quintuplets.

Morris: Is anybody here at the lab doing research on this now to try and cope with that factor?

- Cutter: Well, there's research going on here and all over, hoping to find something which would be effective in making it just a one-child product. [Laughter]
- Morris: I'm interested in the Overseas Corporation being organized primarily in Japan.
- Cutter: That's only one plant. We also have a plant in Australia, Tuta Laboratories, and we also have a plant in Mexico. We're establishing one now in England.
- Morris: Those are all part of the Cutter Laboratories Overseas Corporation?
- Cutter: No, they're not part of the Japanese one. They have different names and they're not combined. You'll get into a lot of names here and don't let it confuse you, because they come and they change. Just consider it the various tax things set out by the government to encourage certain trading in certain lines and each requires a different kind of a company and a different name. So, you'd get bogged down up to your neck if you try to get into this.
- Morris: I have been somewhat. That's why I wanted to try and sort them out.
- Cutter: Don't bother.
- Morris: The Japanese were the first that came to you really wanting to produce in their own country?
- Cutter: Well, that was a licensing thing and we've since cooperated with them, just the year before last, in licensing a blood plasma corporation in South Korea.
- Morris: So that you're sort of a one-man United Nations. [Laughter]
- Cutter: That's right.

Product Development

Medical Specialties

- Morris: Now I have a couple of questions on product development. From the late 1950s on, I find reference to pharmaceutical specialties as a hopeful direction for the future.

Cutter: Well, it's a dismal thing, but we had hoped to get along with it. Several were brought out, none of which were successful. Mainly, we just didn't have the facilities or the know-how in the pharmaceutical specialty field--not our dish of tea.

Morris: What is a pharmaceutical specialty?

Cutter: A pharmaceutical specialty is usually a product with a trademark which is sold, usually, but not always, on prescription, through the pharmacy, demanding a doctor's prescription, although some of them, like the antacids that you can get over the counter, don't require a prescription. They are also called pharmaceutical specialties.

Morris: It's in the pharmaceutical specialties that there's a large profit margin, isn't there?

Cutter: There can be.

Morris: So. Excedrin* would be a proprietary kind of a product and, in 1962, you were licensing Bristol-Myers to market Excedrin*.

Cutter: That's right. Now, you're going to ask why--I'm putting words in your mouth here!--why didn't we do it ourselves? First of all, we didn't have the know-how. That's a very specialized thing.

Morris: What kind of know-how? Production?

Cutter: Merchandising know-how. Production's nothing. It's the merchandising know-how and it requires tremendous resources. As you know, Bristol-Myers, in marketing Excedrin*, have tremendous television and other advertising expenses. It isn't just the advertising. It's the work through the wholesalers, through the exchange, through the pharmacies. It's just a very, very complicated, specializing thing, needing tremendous resources.

Morris: Primarily directed toward the retail end of marketing, which was out of your territory.

Cutter: That's right.

Morris: Then how had you come to develop the product which was called Excedrin*?

Cutter: It just came out of our laboratories there. At that time, we were working on pharmaceutical specialties. However, the sad part of that was that after we had licensed Bristol-Myers on it for a year or so, we found that somebody else--there was a

- Cutter: reference in the literature to exactly this same combination before we had conceived of it and patented it. So, that just threw it all out the window.
- Morris: And that previous person rose up and said he'd like a piece of the action?
- Cutter: No, no. Just that it anticipated our patent. Wait a minute. Now I'm getting technical with you in the patent field. All it means is the other person didn't have a patent on it, but he had written about it, and, because his work had not been known at the time, either by us or the patent office, a patent had been granted us. However, when we found that this had been there, why our patent immediately became invalid.
- Morris: Who brought it to the patent office's attention?
- Cutter: I don't even know that it came to the patent office. I don't know whether it came to us, or Bristol-Myers, or who it came to. But once something like that comes up, it wouldn't do you any good to try and keep it a secret anyway, because it would be against the law to hide something, trying to make out like you had a patent when you knew you didn't have a valid patent.
- Morris: And without a valid patent, there's no reason for any licensing arrangement?
- Cutter: There'd be no reason they should pay us anything.
- Morris: Because it's sort of in the public domain?
- Cutter: Well, it is in the public domain. That's certain! [Laughter] But you'll notice this. As far as I know, nobody else has come out with a product with the ingredients that are in Excedrin*, even though this has been known by everybody in this field for several years. What is the reason for it? It's the same reason we didn't try to do it, because it takes tremendous know-how and tremendous resources.
- Morris: As a lay person on the receiving end of all this merchandising know-how that you speak of, Excedrin* seems to me to be in the category of general headache and feelings of discomfort remedy, of which there are a number. I didn't realize there was that much difference between Excedrin* and Anacin* and some of the others.
- Cutter: Aspirin--they're all competing. Alka-Seltzer* and so forth.
- Morris: I have assumed that each company was marketing their own variety.
- Cutter: Oh, terrible competition!

- Morris: Who, primarily, at Cutter was interested in getting into this highly competitive area of pharmaceutical specialties?
- Cutter: Harry Lange, I think, was more interested than anybody else.
- Morris: Well, many ideas must be considered and rejected in the course of corporate planning.
- Cutter: That's right. As I say, we didn't like to get out of that. It seemed like such a fine idea at the time. But it takes courage when you say, we're not going to go ahead with it. We're going to discontinue our entire sales force in that field and discontinue the products and that's it. That's a lot harder to do than it is to decide to get into this market.
- Morris: Had you begun to build up a sales force in this area?
- Cutter: Right. We'd tried to. We had a sales force.
- Morris: Was this Savage Laboratories?
- Cutter: No. That was entirely different.
- Morris: Okay. I thought Savage was related to the pharmaceutical specialties area.
- Cutter: That's right.
- Morris: Had Savage got some products that you were interested in when you acquired the Savage Laboratories?
- Cutter: That was another thing with reference to this thing. We had hoped that we could develop fine, exclusive, therapeutic specialties, which were not therapeutic specialties from the standpoint Excedrin* was, but which could be detailed and advertised to the medical profession only, which is a far less costly and less difficult job.
- Morris: This would be prescription type?
- Cutter: This would be prescription. Well, call it luck or whatever it was, we didn't have any real exclusive thing come out of our research laboratories.
- Morris: Were the Savage people doing research?
- Cutter: No. We were doing the research. They had hoped that they would get from us research help. Now, when it became clear later on that we had not and perhaps wouldn't get anything out of the laboratories in at least the foreseeable future and that the expense was terrible, because of this Food and Drug law which

Cutter: had gone in, requiring terrific, expensive work to prove efficacy as well as safety--it doesn't cost hundreds of thousands, it costs millions of dollars--so, when we decided we weren't going to have it, we then decided that we would dispose of Savage.

Food and Drug Regulations

Morris: Was it primarily the toughening up of the Food and Drug requirements that led you to this decision?

Cutter: Well, the toughening up of Food and Drug requirements has been--you can view it in one of two ways. You can say it was the greatest thing that ever happened for the public, because before a new product was brought on, why, terrifically exhaustive tests had to be made on it.

However, there is no question about it but had this law been in effect for the previous fifty years, the progress in medicine would not have been nearly what it was. Not nearly! This has slowed down medical research and medical progress in this country. Sure, each individual patient, you might say, is more safe when he takes a new medicine, but overall--let's say that for one person who might have taken a drug that was later found to be more or less unsafe, there have been hundreds and thousands saved by products which came on the market with, perhaps, \$10,000 to \$30,000 of research, rather than \$1,000,000 to \$10,000,000 of research.

Now, this practically took the smaller companies--they couldn't afford that kind of ticket--right out of the field.

Morris: It takes them out of the possibility of a breakthrough that might otherwise occur.

Cutter: Yes. They can't put that money into it. It is concentrating drug research by private companies in the hands of only the very largest. They are the only ones who can afford to do it. Let's remember that the research progress in the previous fifty years didn't come out of universities, for the most part. It didn't come out of hospitals. It didn't come out of government research. It came out of research by private industry.

Morris: And you're saying you think that the research developments in the future are going to have to come out of the publicly funded--?

Cutter: They are going to have to either come out of publicly funded work or out of the research laboratories of the very, very strong private laboratories.

There's another adverse thing here. Let's just take leprosy.

Morris: I thought that had been solved.

Cutter: All right, but let's say it hadn't. Let's take a disease like leprosy. It has practically disappeared, but it still isn't solved now. It's a terrible disease of very low incidence. None of these large manufacturing firms could think of making a \$1,000,000, to \$10,000,000 expenditure when their total possible sales of the product couldn't be more than \$100,000 a year. So, that type of thing, as far as research here in this country, is out. It's got to be a pretty big disease to get any--

Morris: Which brings it back in the public health area. Is that what you're saying? If the investments in research are only going to be productive commercially in something which has a high incidence, that's your public health types of things.

Cutter: What is the public health?

Morris: The illnesses. Heart disease and cancer are the things where medical research is now, according to what you read in the general press. Those are referred to as public health problems because their incidence is so large. Are you thinking that future medical research is going to be only in the areas of these medical problems which could be considered public health problems?

Cutter: Well, I think you're limiting it too much. For instance, just take the Excedrin* we were talking about. Headaches are more common than cancer. People use a headache medicine now, they use a headache medicine maybe three weeks from now, and maybe four months from now. So, it's a repeat thing. A cancer cure, you'd probably sell only to one person for one time. So, a stomach-ache or a headache may be, from the commercial standpoint, a more potent, practical field than the other.

Morris: I see. One part of the product development that we missed along the line is the alhydroxide* process.

Cutter: Yes. I meant to get into that because I am rather familiar with it. That has been a very important thing in our veterinary field, and it has also come into such toxoids as tetanus toxoid and diphtheria toxoid. Those I think of particularly, because it allows the immune reagent to be absorbed over a longer period of time and, therefore, to build the immunity with fewer injections.

Morris: And this was something that was developed by your lab so that it could be patented?

Cutter: Yes.

Morris: And it's still a process that is used?

Cutter: Yes.

Prosthetics

Morris: All right. Now, the other area that we haven't talked about is the prosthetics. How did the laboratories and the inventor get together on that?

Cutter: Well, that was a matter of Dr. Smeloff and Paul Kahn, probably because Paul was very much interested in the field and was a very willing guy, a guy who'd catch a ball rather than drop it. Smeloff was a man who was here, close by at Sutter General Hospital in Sacramento, and they got together on that. Then, when we developed the Cutter-Smeloff Valve*, why, other surgeons who had a valve and liked the way that had been produced came to us and said, "Well, could you make my valve?" So, that's the way it went.

Morris: Is Paul Kahn a member of your research staff?

Cutter: Cutter, right.

Morris: What's his specialty?

Cutter: Prosthetics! [Laughter]

Morris: Even before he connected with these--?

Cutter: No, no. Actually, he was in many other fields. He's just a man who has a very inquiring mind and a man who is a doer, a can-doer.

Morris: He's got scientific training rather than engineering?

Cutter: Right.

Morris: If a number of other physicians came to you with valves that they had developed, it sounds almost as if they're tailor-made to each patient.

Cutter: They are. They have to be different sizes, because the hearts are different sizes and the valves are different sizes. Of course, it's again a very fluid thing and there have been other



From The Microscope, October 1971

A Primer On Prosthetic Products

Since the Smeloff[®]-Cutter heart valve was first marketed in 1965, Cutter has earned a world-wide reputation as a leader in the field of prosthetics. The term prosthetics means an artificial device designed to replace a missing part of the body.

In addition to that first heart valve, Cutter now markets the Wada[™]-Cutter hingeless heart valve, Shumway-Angell[™]-Cutter graft support ring and Niebauer[™]-Cutter metacarpophalangeal joint prosthesis.

Natural heart valves consist of two or three thin layers of body tissue. Basically they regulate the flow of blood through the heart. When the valve isn't working properly, the supply of blood, and hence oxygen, to the body may be impaired.

In such cases, the heart may become dangerously enlarged, with the increased possibility of heart failure. The slightest effort can bring on breathlessness.

Some years ago the best a doctor could do for patients with malfunctioning heart was to prescribe bedrest and medication. But today a seriously damaged valve can be removed and an artificial one implanted in its place.

The Smeloff[™]-Cutter heart valve oper-

ates on a principal different than any other heart valve employing a ball. All other ball valves seat on an orifice. The Smeloff[®]-Cutter ball is smaller than the orifice and passes back and forth in the double cage as the heart is pumping. Many benefits flow from this different operating principle.

When the pumping chamber contracts, the ball is forced against the shorter end of the cage, effectively closing off the opening between the chambers but allowing enough flow to reduce embolic problems. When the pumping chamber relaxes, the ball falls away toward the larger cage allowing a maximum opening for the blood to flow through.

Obviously, to do this more than forty million times a year demands that the materials of the valve be extremely durable and reliable. They should also be chemically inert so as not to react with the chemicals in the blood.

The cage of the Smeloff[™]-Cutter valve is machined from titanium—a light, strong and corrosion-resistant metal. After machining, the cage is meticulously filed and polished to bring out the smoothest possible surface.

The ball is made from solid, silicone rubber. The inert qualities of this material make it highly suitable for implantation in the human body. Another inert material, DuPont Teflon[™] cloth, is attached to the rim of the valve for sewing the unit into the heart.

The Wada[™]-Cutter hingeless heart valve consists of a one-piece titanium ring; a solid plastic leaflet; and a knit DuPont Teflon[™] cloth.

This valve is very light in weight and occupies little space within the heart. The blood flow through the valve is smooth and nonturbulent, generally minimizing the danger of triggering the tendency of

the blood to clot when it contacts certain prosthetic surfaces.

The Shumway-Angell[™]-Cutter graft support ring consists of a titanium frame with a knit Teflon[™] cloth covering. The ring is used to support heart valves that have been removed from a cadaver and grafted into patients requiring replacement of a diseased valve.

Tissue valves from either animals or humans have a special advantage over mechanical valves in that there is less risk of thromboembolism and therefore continued anti-coagulation drug therapy is not required.

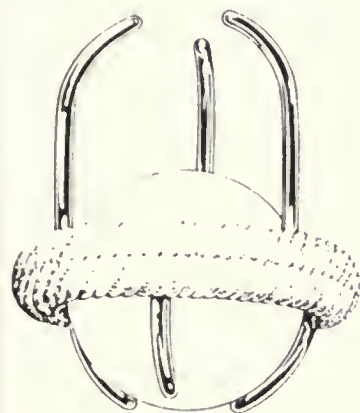
The Niebauer[™]-Cutter prosthesis is for replacement of metacarpophalangeal (the knuckle between the fingers and the wrist)



Niebauer[™]-Cutter prosthesis

and interphalangeal (finger) joints. The prosthesis consists of medical grade, silicone rubber molded over an inner layer of Dacron mesh. Dacron is the DuPont trade name for polyester fiber.

Two outer layers of this mesh are sewn to the stem of the prosthesis. Bone and fibrous tissues rapidly infiltrate the mesh and fix the stems in place providing necessary stability. (CONTINUED ON PAGE 4)



Smeloff[®]-Cutter heart valve

Cutter: physicians who have come to us. One was a Japanese physician, Mr. Wada, and we made a valve for him and, oh, others. I won't try to go down through them.

Morris: But do you keep a supply on hand of different sizes, rather than somebody saying, "I am going to do an operation, make me up one?"

Cutter: Oh, yes. Different sizes. The hospitals supply different sizes. They have to have them ready for operations, because they don't know until they go in what size they're going to need.

Morris: Yes. But in this kind of heart surgery, does a physician know he's going to want to implant a valve beforehand?

Cutter: Probably he knows. He may get in and decide not to afterwards, but he usually knows he's going to put one in.

Morris: Is the line now just in heart valves?

Cutter: That's what we intend to keep in. We're dabbling in others, but we're likely to get out of them.

Morris: What particularly, aside from Dr. Kahn's inquiring mind, makes this a good line for Cutter to get into?

Cutter: Well, through that, we've developed a very fine manufacturing division who do exceptionally fine work in the field.

Morris: So that you developed the capability to make this after you had the requests? It's a specialty production line?

Cutter: Oh, yes.

Plasma Fractions

Morris: Are there any other landmarks from the research department that I have missed?

Cutter: Well, I don't know whether you properly emphasized the plasma fractions, because that has been our most successful research endeavor.

Morris: Thank you. I think you're right. This may be because I felt somewhat overwhelmed. Could you summarize that for us?

Cutter: Well, we were in the plasma fractions in the war--one of nine companies--and then, following the war, all of the other

Cutter: companies except Cutter dropped out of commercial work. I think two of them continued to supply some plasma fractions to the government, but we continued our own private bleeding centers and produced plasma fractions for the medical profession at large. No one else did this. And we put in a great deal of research on this and we have been more successful in the products we have developed, you might say, than all the others put together.

Our Plasmanate* product, which we've now licensed to several others, not the name but the process, has been an outstanding medical success.

Morris: Now, the first stage was the drying of plasma, which is the whole plasma, and then you went into albumin and fibrin foams? I think what I'm sensing here is something like generations of research in blood fractions. Is that the way it went?

Cutter: That's right, yes.

Morris: Plasmanate* was pretty early?

Cutter: That was one that came out secondary, let's say. First of all, we just had the albumins and gamma globulins and then the Plasmanate* came out. Later on, there was the measles immune globulin, mumps immune globulin, tetanus immune globulin. We're now working on rabies immune globulin and we brought out Konyne* and we're bringing out Koate*, which are products for those having various kinds of bleeding problems--hemophiliacs.

Morris: Again, the bleeding problems are something that affect a very small number of people, but, for those people, it's critical?

Cutter: Extremely important!

Morris: And, in the nature of research, you first had to develop a product like Plasmanate* before you could then do the kind of research which would produce the immune globulins?

Cutter: No, no. No relationships.

Morris: Okay. These are extremely important medically. How does the quantity and the productivity compare to the solutions? In other words--

Cutter: Forget it! [Laughter]

Morris: They're also marketed to hospitals?

- Cutter: Yes. They're marketed to hospitals and, also, we sell a great many of these overseas. This is perhaps our largest overseas sale. It is our largest overseas sale.
- Morris: Because you're the only producer?
- Cutter: Oh, no! Now, others have come into it, domestic and foreign.
- Morris: But Cutter is still the variety of choice?
- Cutter: Yes.
- Morris: That's nice. And yours were the first on the market and your people developed them.
- Cutter: Yes. And we've shifted our research efforts from the field of pharmaceutical specialty things into this field, where we have the snowball rolling.
- Morris: In other words, you think that your people, with the confidence and knowledge they have, are more likely to come through with additional developments?
- Cutter: Right.
- Morris: Where do you think those are likely to come?
- Cutter: Well, in this process of plasma fractionation, there are numerous fractions now which are thrown away and other fractions which we previously threw away, now we find useful. I think that there's just tremendous possibility, in the future, for many of these fractions, to find uses which we now have no idea of what they're all about.
- Morris: Who, particularly, are the people with the research capabilities in this area?
- Cutter: This would be Dr. Hamlin and his men.
- Morris: He's now the chief of research?
- Cutter: Vice-president for research. I wouldn't want to get into any names underneath.
- Morris: Yes. Does he go back to the wartime blood processing?
- Cutter: No. He's come with us within the last ten years.

Assisting New Cutter Leadership

Morris: Now, I have a couple of wind-up leadership questions. What decided you to step down as president in 1962?

Cutter: Isn't there a quotation "The old order changeth, yielding place to new." I was getting along to an age where I felt it would be advisable to have new leadership come in while I was still here to be called on if needed. This is exactly what happened. Fred did die, as you know, very unexpectedly. So, at that time, I was there to bridge the gap.

And during Fred's time and since, I would say, if a man can do what I have done--and I am very proud of what I have done--I've been able to be here, to know what was going on, and yet, not to run the thing or try to run it, or to make my advice too insistent, but to be here when Fred, then, and, later, David, or his men, wanted to come and just kind of talk out a problem.

It's kind of like handball, when I'm practicing with a handball coach. He does the pitching and the catching and all, but he's got somebody to bounce the ball against and somebody who has no axe to grind, who has a vision of the company as a whole, who has no one division under him, and who can keep his mouth shut. I missed having anybody like that. I never did have anybody.

Morris: Was this in your thoughts, that you'd like to avoid anybody else being dropped in the spot you were, to take over without anybody--?

Cutter: Well, I hoped I would be of some value to the thing, without, as I say, being a nuisance. And, furthermore, I hoped I'd be able to take away, from the men who were actually running the thing and had many different demands on their time, the things which are kind of ceremonial things. If somebody wants to speak to the head man and he gets to speak to the chairman of the board, he can't object to it, but if he gets to speak to the executive vice-president, he doesn't think that he's gotten quite to the top.

So, I've been able to take care of many things along that line and also a lot of the routine things, which I used to have to take care of, like the Cutter Foundation--you know, the demands on us, not just from the foundation, but legitimate requests for gifts and support, not only here, but wherever we have a plant or an office. These are things which are of damn minor importance, as far as the magnitude of the decision goes, but they take an awful lot of time, because each one who has a

Cutter: cause is sure that there is no other cause in the whole world as important and as deserving of funds as theirs. They want to take a lot of your time. They've got a lot of things they've got to make sure that you understand, A to Z, about their cause and their organization. So, if they get the chairman of the board, why, that's fine, they're satisfied. But they're not satisfied with seeing anybody else.

Fred Cutter

Morris: Was 1962 a particularly good year to make this change did you feel?

Cutter: I don't remember. Nothing one way or the other that way. As I say, I had a younger brother and he was doing good work and had a good head. Remembering all the things I had to do in 1932, which I think I told you about a while back, I just can't conceive of how I covered all the functions. Come 1962, and I couldn't possibly have covered those functions in that way.

Morris: Was there much discussion about whether it would be Fred or Ted who'd be taking over?

Cutter: Well, you see, Ted had this terrible eye difficulty and his physician just wouldn't--and Ted realized he just couldn't take it over and that's why. It was just too much responsibility and too much need for eyes and too much pressure.

Morris: Did Fred make any major changes in direction?

Cutter: Not particularly, no, and very naturally, because I'd consulted with Fred and with Ted all the way along. Their counsel was more than valuable to me. So, very, very rarely were Ted and Fred and I at differences or at different conclusions as to what the decision should be. Far less than we were in our earlier years! [Laughter]

Morris: Did his style of leadership differ from yours?

Cutter: Oh, yes, sure. Everybody's style differs. I wouldn't know in just what way to put my finger on it, but sure. It's all individual.

David Cutter

Morris: When Fred died so unexpectedly in '67, who were the possible choices to replace him?

Cutter: Well, actually, Fred, while he was six years younger than I, realized that he, too, either by natural retirement, or, as it happened, by death--that it was wise for him to be grooming a successor. He gave a great deal of thought to this and felt that David was not only the outstanding candidate, but the only one. So, he had put him in corporate planning for quite some time. Then, when Dr. Van Campen, the previous research director, had to retire because of ill health, he then put him in as acting head of research while he and David sought another man to head the research. And in every way possible, he was grooming David to become president and, further than that, he told the board that he felt that, should anything happen to him or on his retirement, that certainly David was the one he felt should be considered.

You asked why I stayed on and so forth. I think just in this last little while here where we've had this solutions difficulty (again, we don't know what the cause of it is as yet) there is the value of having somebody around if you, again, can have a man who will try to help rather than run the business, I think is a great asset. The difficulty is--and I guess here I'm breaking my arm patting myself on the back--that most men who have run a business find it impossible to be there and see it being run by others in a manner which is quite different from the way they would run it and not want to meddle and not want to make their advice so insistent that it's a damn nuisance rather than a help.

But here, now, we have had all this. David and Hawley and others were back in Washington. All of the news was breaking with this and we had inexperienced people here. It didn't all go the way I'd hoped it would go, but I knew that would be true, because, again, newspaper reporters and columnists don't report what they hear. They report what they want and what they hope will make a good story. That's their place in business and there were a couple of places where publicity was not what it should have been. But, overall, I was able to stay here and handle that.

Even when they came back, they asked, Will you continue to handle that? I planned to leave at the end of April and the question was put to me by somebody that this solutions trouble might go on over a long period of time: Can you afford to be away from here all that time?

And I said I don't hope it will, but, if it does, after I've been here and done what I could on this and they've seen where mistakes were made and they've come around to me and said, Well, you told me so, then this is much better for them to learn the hard way than it is, again, for me to stick around here and

- Cutter: try to do it my way. I'm, of course, here on borrowed time now, so it's better for me not to change my plans for a trip.
- Morris: Yes, in terms of your own energy and--
- Cutter: Not that! For their own benefit and for their own education. You learn a lot more when you've made the goof yourself than when you have somebody else in there.
- Morris: That's true. But you don't think that the accumulated experience of having been through similar things before and having your advice helps in handling a crisis when it comes up again?
- Cutter: Oh, fine! But I hope there won't be any crisis and, if there is, they're going to have crises long after I'm gone! [Laughter] They'd better be able to handle them. I've given them this much now. Why stay here and try to reach up from the coffin and-- [Laughter]
- Morris: When David became president, did he go in directions that you did not expect?
- Cutter: I wouldn't say that I didn't expect, but I would say that his methods were different from Fred's and his methods were different from mine and whoever takes over after he's gone will be different from his. No two men run things the same.

In Years to Come

- Morris: We talked a bit on your thoughts as to what government regulation will mean to the future of the pharmaceutical industry in general. In terms of the future of Cutter Laboratories, what other factors do you feel will be important?
- Cutter: I think the government regulations are going to be important. The economy and medical progress--it's all important to us. What are the changes that are going to come up? You and I can't tell. Nobody can tell what changes. All we can say is, "There are sure to be changes."
- Morris: Do you feel that the way that changes will be met depends, in a way, on the qualities of the executives that the laboratory has now, and, from that, do you feel that there are any different characteristics in the present crop of management, different from those of the people you selected?

Cutter: Well, I think David is doing exactly what I tried to do. I tried to have as many different men as I could in the company who could be considered for the presidency of the company.

I remember Mr. Booz, long since dead, but the one who founded Booz, Allen and Hamilton, perhaps the pre-eminent management consultants in the country, saying to me, "I never saw a company, large or small, that's had so many men who would be considered capable of taking over the presidency of the company." I think that's an important business principle, to always try to have as many as you can have. It's particularly important for us now, where we have these other associate companies that have positions now, because those are good training grounds for good men. You can't have too many good men.

Morris: How about the factor of personal rivalry?

Cutter: Oh, sure, you get personal rivalry, but that's all right. Every company has it. Every university has it. Every organization has it.

Morris: It sounds as if you feel it has positive aspects.

Cutter: Well, sure it does.

Morris: Would you care to expand on that?

Cutter: Well, just that everyone, I'm sure, feels that all others near him are competitors to the position above.

Morris: And this keeps them all on their toes?

Cutter: That's right. However, the man who tries to get his position by playing down the other man's position will never get to the top. It's the guy who can work with and try to build up the good men around him, whether they be below him, above him, or around, who's going to come to the top regardless. Builders of men are the most valuable thing any company can have.

Morris: How about your grandsons? Some of them must be old enough now that you've got some ideas as to whether some of them are coming with the company.

Cutter: Well, I haven't any idea and they won't get in unless they're worth it.

Morris: True, but I was thinking of them as individuals that you've watched grow. Some of them are in their teens now.

Cutter: Beyond their teens--one, two.



The Family of Dr. Robert K. Cutter, 1965

Throughout his life, Dr. Cutter found time for mountain vacations. Here three generations enjoy a visit together. Standing, from left: David L. Cutter; Robert K. Cutter, Jr., Dr. Cutter; Richard W. Cutter. In front, their wives and children.

Morris: As kinds of people, do you think they're likely to--?

Cutter: I don't think I've ever expressed this, but I would say that we have bred good managers, the Cutter family. [Laughter]

Morris: I would say so, yea! [Laughter]

Cutter: Well, I think of my grandfather particularly; he and my great grandfather were physicians. My father started the laboratories. I've carried it on. My sons and I have carried it on and it's been a good bloodline. I have three sons who've all been capable men.

Morris: And one of them who chose to become also a managerial executive went to another company.

Cutter: That's right. And he has just been transferred here to Oakland with the Owens Illinois Company, in charge of the largest glass plant probably in the world.

Morris: So, the line has bred true. He's got the skill. Therefore, I would judge that the next generation has it, too. The question is, are they likely to come into the company? Do they have the family feeling for the--?

Cutter: Well, it's a little early yet. I haven't asked them, nor have any of them expressed any interest. I wouldn't say "interest" --have expressed anything. And, of course, they can't come in until after they've been out. Remember, we've got this rule for family members. They have to be out for two years after college, or for four years if they only graduate from high school. They can't come directly here. And after they come here, they're up for consideration. I forget whether it's annually or every six months. If they're not a real asset, if they're just a mediocre person in the laboratories, they are asked, then, to, within the next six months, find employment in some other company.

Morris: I won't ask you if you would like to have some of them choose to come with Cutter.

Cutter: Yes, I would hope that some would. Although, it would be wrong to have all of them come with the company.

Morris: Would you like to wind up with a concluding thought? Looking back over the things we've discussed, tracing the growth of the company, could you pinpoint what are the significant factors that have made Cutter Laboratories a leader in the industry and enabled it to become one of the largest American corporations?

Cutter: Well, I think it's, first of all, hard work, pride in the family, and reasonable competence. [Laughter] That's all I can say.

Morris: This Fortune survey, which puts you in the top corporations in the nation--is this something that they keep track of you and send you questionnaires to fill out?

Cutter: No. They just get it out of the annual reports.

Morris: Does receiving recognition of that kind have any impact on sales, or in the morale at the lab, or in activity on the stock market?

Cutter: No. [Laughter]

Morris: Well, I think that just about covers our points of discussion. You've given us very valuable insights into the thinking and effort that keep a firm healthy and prosperous.

END OF INTERVIEW

Transcriber: Marilyn White
Final Typist: Beverly Heinrichs

APPENDIX

*Memorabilia of a man with an infinite capacity for attention
to detail and to communication.*

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- C. Memo, Dr. Robert Cutter to Harvey Howell, requesting information on bottle costs [prior to marketing of intravenous solutions] annotated in detail, 5 July 1932; and stopper design drawing by Robert K. Cutter, 16 December 1935 and 27 December 1935.
- D. "Snake-Bites, a compact suction kit" by Robert K. Cutter, M.D., California and Western Medicine, July 1940.
- E. Dr. Robert Cutter memo, "young men have come to me looking for advice," March 1958.
- F. Three letters reporting progress of polio vaccine recall and litigation to medical profession and other publics, dated June 1955, 18 February 1958, and 12 April 1962.
- G. "Dr. Bob's Primer on Negotiations," 8 October 1971, example of frequent monthly columns written for company newspaper.

The Late Dr. F. A. Cutter, Sr.

Probably no man in this region was more widely known and more widely respected than the late Dr. Frederick Augustus Cutter. He was born in New Ipswich, Hillsboro County, N.H., on Sept. 10, 1805. He was the oldest son of Dwight Moody and Henrietta (Fisher) Cutter. His father was a lawyer and when the subject of this sketch was five years old he moved to Stoddard, Cheshire County, N.H., where he practiced his profession until his death at 45 years of age. He left a widow and five children--three sons, Frederick, Ferdinand and Xenophan, and two daughters. Some of their descendants still reside in Stoddard, N. H. Dr. Cutter received his early education in the public schools of the "Old Granite State", and his medical education at Dartmouth College, N. H., from which he received his diploma in 1829. In December of the same year he came to Sutton, and deciding to locate here, he returned to Stoddard for his promised bride, Miss H. B. Butterfield, whom he married and brought back to his future home in 1830. She was spoken of by those who were intimately acquainted with her as a woman of great sweetness of disposition and a refined Christian character, but the hardships of a new country proved too much for her delicate organization, and she died in 1840 at the early age of twenty-seven, having given birth to four children, only one of whom survives--R. M. Cutter, at present employed in the office of the C. P. R. at West Barnham. In 1842, Dr. Cutter married Miss M. A. Jackman of Corinth, Vermont, who survives him. He had six children by his surviving wife, three sons and three daughters. The eldest son, F. A. Cutter, Jr., M.D., a graduate of McGill College and Bellevue Hospital College, New York, is practicing medicine at Sutton; the second son, Henry, is in California, and the youngest son, George, is a manufacturer and resides in Sutton. The eldest daughter, married to W. H. O'Regan, Esq., mail agent on the S. E. R., also resides in this village; the second daughter, Eveline, is married to Rev. F. Bland, of Victor, Ont.; the youngest daughter, Frances, married G. S. Wood, Esq., merchant of Cowansville, Que.

Dr. Cutter practiced medicine in this town for over half a century. In the earlier years of his practice his rides extended over what is now known as the County of Brune and over two townships of what is known as the County of Missisquoi. When he first settled here there was not more than three or four miles of made road in this township, and no bridge across the large stream in this village only in sleighing time. For the first thirty years of his practice he traveled mostly on horseback and in fording streams and finding his way through the woods he often had not only hard but perilous rides, and none could explain better than he how swollen streams were crossed fifty years ago. In his profession he was looked upon as a man of very good judgment and was very successful; for over thirty years he was the only physician in this town.

In 1838, in common with Dr. Wolfred Nelson, Dr. Cote and other physicians, he sympathized with Louis Papineau in his efforts to make Canada a republic and came near losing his life by being fired at by a sentinel on guard where now stands the drug store of his son, Dr. Cutter, Jr. But like a good many others of Papineau's sympathizers, he joined the Conservative ranks when his friend, the late Sir George E. Cartier, who was also in early life on Papineau's side, carried on what is known as the Cartier-Macdonald Government in 1858.

He was a strong protectionist years before the Conservative party adopted it as a plank in their platform. And a favorite argument with him in its favor was that he "Had rather give a shilling for a jack-knife made in his own country than ten cents for one made in a foreign country". (meaning United States!)

Dr. Cutter was chairman of the Commissioners Court for over 35 years and a Justice of the Peace for nearly as long a time. He also served as town councillor and for seven years was Secretary of the public school board, and secretary-treasurer of the board of trustees of the high school up to the time of his resignation a few years before his death. He was appointed Coroner for the District of Bedford and was also appointed to take depositions in the Superior Court.

To his public spirit the present growth and dimensions of this place is due in no small measure. It was one of his most ardent wishes to see the place of his adoption grow and thrive, and all the land comprising all the building lots from where now stands R. Curley's hotel, extending through Main Street to S. Scofield's farm, he sold at merely nominal prices in order to bring about what he so much desired.

The present town hall in this place would have been but an unsightly one-story building were it not for his efforts. When the S. E. railway was projected through here, knowing how much it would benefit the place, unlike others of his townsmen, he gave the land as a free gift that was used by the railroad in crossing his farm. He was also one of the main promoters of the road between here and Brome Corner, known as the "Valley road", and through his persevering efforts it at length reached a successful completion. In fact all through his life, quietly and unostentatiously, he proved himself a true public benefactor. His moral and christian character has stood the test of years and was above reproach and he leaves to his descendants an unsullied name and a record that they may well feel proud to look upon.

Up to last February, when he was taken ill with what proved to be his last sickness, he was still hale and hearty, and though he was in his eighty-third year, his form was as erect as in his early manhood, and the day before he was taken sick he rode away from home to visit a patient who would have no other physician but him. He was confined to his bed for four months before his death, and though some of the time his sufferings were intense, they were borne with fortitude and christian resignation. He died on Sunday morning, June 17th, preceding his old friend the Rev. J. Smith, a sketch of whom was given in this paper last week, into eternity just two hours. On Wednesday, June 20th, the old and beloved physician was carried over the threshold of his home -- the threshold over which he had so often hastened, bent on errands of mercy to relieve the sick and the suffering, many of which no record was ever made save by the pen of the recording angel -- to the Evangelical Advent Church, of which he had been a member when a very excellent discourse was preached by the pastor, the Rev. H. P. Cutter. The Rev. Mr. Reynold of West Potton, and the Rev. H. Young, pastor of the Methodist Church, assisted in the services, the other resident clergymen were also present. The pall bearers were Messrs. A. Frary, G. H. Boright, R. Mills, T. Povers, J. Downs and S. Scofield, an octogenarian in company with whom Dr. Cutter opened a general store in this village in 1840.

Sutton, June 23th, 1888.

THE CUTTER LABORATORY OF ILLINOIS
 SELLING AGENCY FOR THE CUTTER LABORATORY, BERKELEY, CAL.

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"SERVICE" IS THE KEYNOTE
 THE CUTTER POLICY

443 SOUTH DEARBORN STREET
 CHICAGO.

CL
 On visit to Abbott Labs

Saw Dr. Kirby who
 showed me they ^{pharmaceutical} ~~therapeutic~~
 end and Dr. Bean - who
 showed me they - rather
 talked me they to biological
 ind.

As you know they put
 out no antitoxin or smallpox
 vaccine. They put out Giant
 and I-wary Ragweed only
 in an acetone extract. if
 they ~~is~~ extract in normal saline



and throw down with
rectors.

They collect rag-pollen
by bagging (same as Harris-
on. (Harrison was there
here in June and Bean
saw him and was
impressed with
his method. B — is quite
familiar with different
methods of collection and
extraction.

This afternoon I
saw Dr. Hubert who
is associated with Dr. Kessler.
He collects pollen. He
uses ragweed & camel
hair brush into deep



THE CUTTER LABORATORY OF ILLINOIS

SELLING AGENCY FOR THE CUTTER LABORATORY, BERKELEY, CAL.

ANTITOXINS, SERUMS, VACCINES,
TUBERCULINS, ETC., FOR HUMAN
AND VETERINARY USE.BIOLOGICALS EXCLUSIVELY
PRODUCED UNDER
U. S. GOVERNMENT LICENSE."SERVICE" IS THE KEYNOTE
THE CUTTER POLICY443 SOUTH DEARBORN STREET
CHICAGO.

pan and collects timothy
by picking and standing
in water. - good yield
Emphasizes fact
that pollen must be
dried before storing. ~~He uses~~
stands in warm room.
Used scatch but are
going to try intracutaneous
this year.

Dr Beard (by the way)
thinks that plants yield more
when they are bent or partly
broken. He uses this prin.



cupat in their ^{giant} ragweed collection.

Giant ragweed is their worst offender here.

Abbot sent out giant alone for mid-west and giant & dwarf = parts for eastern states.

Day before yesterday I visited S.P. and was piloted a round by a boy who spent most of his time telling me he didn't know what was down there, here or what was down there.

Back home soon
 Gods Country.
 Rob.



July 26

W. H. Wadsworth

1.58 per gross (to be paid)
per 1/2 liter (2-pieces) 20 per
no. min. run RKC

Berkeley, Calif.
July 5, 1922

\$450.00

Pending further information

Will you please get for me what the mold cost would be and the cost per bottle with and without the mold and the attachment for holding the handle to the bottle, of the Baxter 1 liter glucose bottle. There is the triangle on the bottom which I believe shows that it was made by the Illinois-Pacific Co.

Will you also find out for me if they have any other stock bottle which would hold a liter (33.81 ounces). An Imperial quart would be o.k.. This holds 1.1 liters. It should take about a No. 5 rubber stopper and over this we should be able to put on a metal cover cap with a rubber liner.

Also find out if the Baxter bottle is made of any particular glass or if Baxter finds the standard glass o.k.

It would be better if the stock bottles they picked were one which looked like a bottle suitable for biologics rather than the usual whiskey bottle type with the long neck.

Also let me know, when you get the approximate length of the bottle how much a glass tube extending from the top of the bottle to the bottom of the bottle, as the tube does in the Baxter flask, would be. Also, find what the price of the No. 5 rubber stopper in No. 5 size in quantity would be.

8" tube - 3/8" dia
Baxter tube
Tube \$.03
Best gum stoppers .03

R. K. C.

W. H. Wadsworth
S. F. =
Pat. J. O. =
Pat. J. O. =

"Patent applied for" on letter bottles (Baxter)

Handle and attachment custom made. Cost him \$550.00

Handle and attachment custom made.

Therapeutic.

As you can't patent the glass part. Referred to their "new use" design for case to figure "idea" only involved.



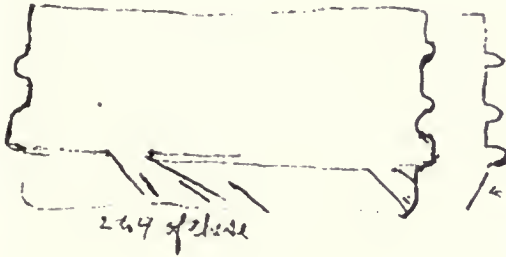
one side



opposite side

12-16-35
R. L. Miller

present temporary proof

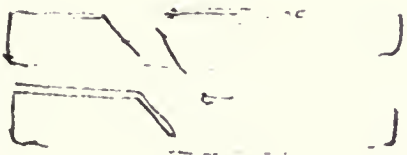


2 1/2\"/>

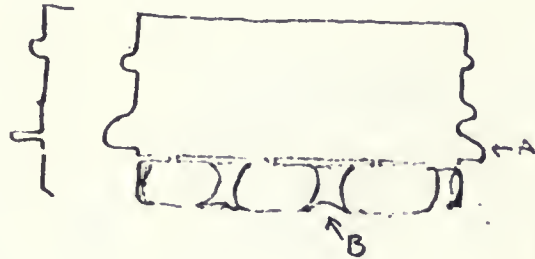
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A
B

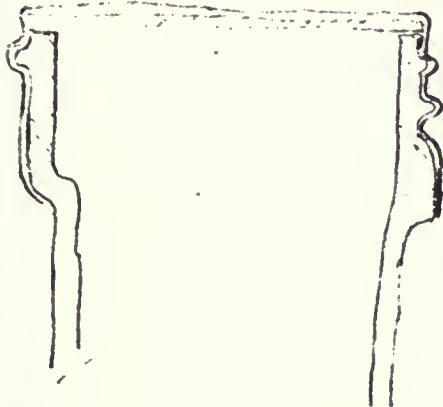


- 1 larger projection at A to keep hands away from jagged edges
- 2 ? interphases & beads in glass at B to keep lower ring from turning



A

B



occasional lug to rear mount the in turned edge.



12-27-35
R. L. Miller

insert in middle section

temp proof

CLINICAL NOTES AND CASE REPORTS

SNAKE-BITES

A COMPACT SUCTION KIT

By ROBERT K. CUTTER, M. D.
Berkeley

AS I frequently fish the streams of the Sierra Nevada Mountains, I have had in my camping outfit the least bulky of the available effective suction snake bite kits. On one occasion, before leaving camp in a section renowned for rattlesnakes, I tried placing this kit in various pockets; but, due to its size and hard edges, it seemed too uncomfortable an impediment to put up with. In consequence the kit was relegated, as usual, back to my dunnage bag.

That day, with the snake-bite outfit back in camp, four rattlesnakes were encountered under not too comfortable circumstances. This engendered a resolve not to be caught in a similar situation in the future.

Review of the literature confirmed the impression that effective emergency treatment required incision, tourniquet, and suction. There were available two types of suction outfits. The syringe or plunger types were more compact, but seemed impractical, as two hands are required for the proper application, and only one hand would be available if the bite were on an upper extremity. Furthermore, they are not self-retaining, and due to fatigue and the inconvenience of continuously

pulling on the plunger, it seemed obvious that suction would not be as continuous as with the bulb type.

The bulb types of suction devices available, while self-retaining, were bulky *per se*, and the packages necessary to contain the bulb and other accessories were even more bulky.

Since my needs were not met by any available outfit, I decided to try my hand at designing one. An attempt to make up an outfit with an elongated bulb having a glass mouthpiece was not satisfactory, as the bulb plus the necessary accessories was still a nuisance to carry; furthermore, the glass mouthpieces were fragile and broke in spite of various efforts to protect them.

This led to a combined suction device and mouthpiece all of rubber, and in cylindrical form so that the interior served as a container for a smaller similarly shaped suction device for use on the fingers, and the interior of the smaller "sucker" served as a container for the other necessary accessories. In other words, the accessories were contained in a capsule made up of two suction bulbs.

By making the suction pieces with reinforcing bands running horizontally and longitudinally, weight was saved and suction strengthened.

The use of the two nested red-rubber "suckers" as a capsule container proved to have several unlooked-for advantages. While they would not protect the contents against complete immersion in water for a long period of time, they would protect against rain indefinitely or complete, short immersion such as would be encountered when falling into a stream. Rubber has a clinging proclivity for cloth and does not slip out of the pocket easily.



Fig. 1

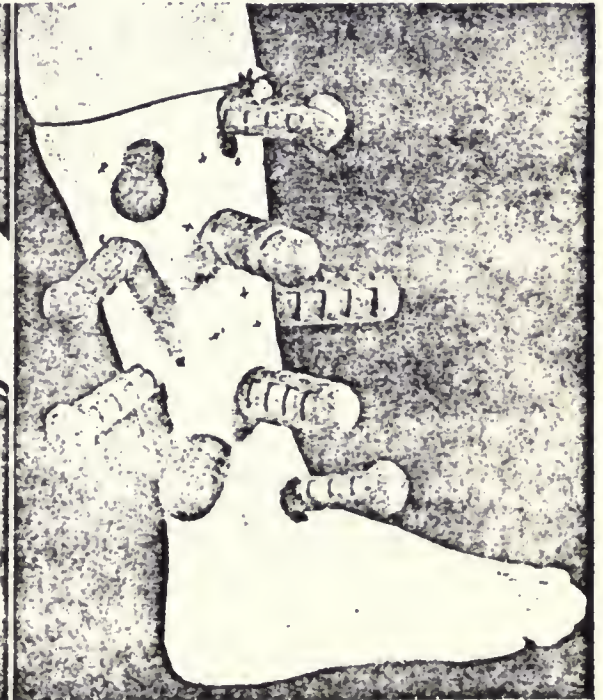


Fig. 2

Fig. 1.—Showing the two sizes of suckers which form a capsule to contain a lancet, a tourniquet, and an antiseptic.
Fig. 2.—Illustrating the use of multiple suction cups on cross incisions over the area of swelling surrounding the bite. Note that the tourniquet is tight enough to stop lymph flow without stopping venous return.

From time to time, young men have come to me looking for guidance. Some have known right where they wanted to go but needed help in determining how to get there. Others were simply groping blindly with no clear idea of where they wanted to go or why. The following are some of the ideas which have come out of discussions with these men:

Don't just drift into your life endeavor because a "job" is open when you need one. Decide on the type of work which you will do best and in which you will be most happy. Confirm this through aptitude tests. Do you want to live always in one locality, or do you wish to move to other localities as you advance? Do you prefer a small, medium or large organization? Choose accordingly.

Choose with great care the organization with which you will cast your lot, regardless of whether it is non-profit or business. It is far more important to you that you choose the right organization than it is to the organization that it make the right choice in you. Your productive years are limited; an organization's are not.

Any organization with which you become associated will have many imperfections and no perfections. This has to be, because an organization is a group of individuals, and a perfect individual for any position has yet to be found. Work to improve the imperfections of your organization, but never criticize it within or without. Criticize only those whom you supervise and only in private, then try to mix the criticism with praise. Seek opportunities to give due praise in the presence of others, but don't overdo. It may work to the disadvantage of the one who is overpraised.

Seek the advice of older men. They can look on life with greater perspective.

Seek criticism of yourself and your work, but never show anything but appreciation for the criticism no matter how unjust it may seem. Mull over the criticism for several days or weeks before finally deciding that it is unjust.

Work diligently and don't be impatient of your progress. Again, talk with older men inside and outside your organization before you decide that you are not progressing fast enough. Don't listen to the man who urges, "Take it easy, you have to have pull to get ahead in this layout." He won't get very far; you may.

If you aspire to a major or a minor managing position, try to take an active part in some organization in which you are interested. It doesn't make any difference whether this is a camera club, a church, a charitable organization, or what have you. If you can become one of the directors or principal officers, it will help you immeasurably since most of these activities are like running a business. You have to collect money, spend money within a budget, learn to express yourself well, and get others to work with you.

Mathematically, the shortest distance between two points is a straight line. In life this is often the longest and hardest route. Alter your timing and methods of reaching a goal to fit the interests of others, and so secure their cooperation instead of their opposition. Give much credit but claim little.

Surround yourself with the best help available. Use their help and talents to the greatest degree. Hope that they will be better men than you are. The worst flop is the man who picks mediocre associates for fear that one of them will show him up.

Get along with everyone. Consider it a failure of yours when there is someone you cannot get along with, no matter how unreasonable or ornery he or she may be.

Ability to get along with others is one of the greatest assets, and inability to get along with others is one of the greatest liabilities in any position, occupation or career -- even that of the lone wolf research worker.

If you dislike someone or suspect that someone dislikes you, go out of your way to find means of removing this antagonism. In your relations with others, try to return much more than you take. In our own minds, we are likely to maximize what we give and minimize what we receive.

Never display superiority of education, knowledge, position, or possessions. Be tolerant of the other fellow's beliefs, opinions, faults, race, or actions.

No matter how complete your formal education, keep it alive by continued reading, attendance at meetings touching on your field and, where practical, visits to organizations having problems similar to yours. It is best not to rely on reading alone. The printed word cannot compete with a living, breathing man's enthusiasm, facial expressions, gestures, and spoken word, to inspire and lead to thought and action. Those with no formal education at all are frequently better educated than those who have several degrees, simply because they have read and listened much and well.

Try to prepare for all eventualities, but never announce a decision on a course of action which will not be taken until some time in the future. Conditions may change in the meantime, and you may feel obliged to continue along the lines of your announced decision or lose face.

Be a good manager of your private financial affairs. No matter how small or how great your earnings may be, keep a substantial margin between what you make and what you spend. Forget keeping up with the Joneses. Your friends will admire you for living in an older or smaller house, or driving an old but well-maintained car. They will admire you too for using secondhand furniture and appliances until such time as you can supplant them piece by piece for cash with the finest available.

Don't get installmentitis. Buy "on time" only your home, and perhaps your first auto. Appliances and furniture bought for cash not only save heavy carrying charges but don't leave you in a financial hole come sickness or other emergency. Before you reach "middle age" you will have seen a number of examples of families in real trouble and unhappiness because they bet that they would never have sickness or lose a job. Carry a comfortable proportion of your savings in an immediately available form. Nothing else can give you such a sense of self confidence and independence.

If you are the type who likes an all-encompassing hobby which takes all of your spare time and which you do to perfection, ride it to the limit. If, however, you are one who neither has, nor likes to consider, such an overpowering hobby, actively look for as many "interests" as you can and try to make some of them interests which you can follow even if you are physically incapacitated.

Interests as opposed to hobbies may be dabbled in or followed fairly avidly, but none of them is all-possessive. They may be put on the shelf to be followed at a later time. Try to make at least some of these interests creative, such as art in some form, gardening, hybridizing, wood or metal working.

Think broadly. Think beyond your own job, department, division, or organization. The more broadly you think, the further you are likely to go.

R. K. Cutter
March 1958



CUTTER Laboratories

U. S. GOVERNMENT LICENSE NUMBER 1

Executive Offices
FOURTH AND PARKER • BERKELEY 10, CALIFORNIATELEPHONE
THORNHALL 3 0175CABLE ADDRESS
"VACCINES" BERKELEY*Plants:* BERKELEY AND CHATTANOOGA

June, 1955

Thanks so very much for your encouraging letters, telegrams and phone calls.

We have taken a pasting such as no other company ever has. We have read editorials pointing to our "evident carelessness". We have heard a broadcaster say, "...since Cutter put the skids under the polio program." My niece who teaches school has been asked, "How does it feel to be a killer of children?" Many of you have asked, "Why do you take this, why don't you fight? We learned very early in this episode that whatever we said in our defense was looked upon as an attempt to whitewash our vaccine."

You know what the public doesn't know. You know that Cutter is a 58-year old biological laboratory. You know that Cutter has a justifiably excellent reputation for know-how in the development and production of biologicals. You know that we are old hands at virus vaccines. We have produced smallpox vaccine, rabies vaccine, canine distemper vaccines, and hog cholera vaccines.

We have put years and our best qualified people, and believe me they are well qualified, into this polio program. The Cutter Poliomyelitis Vaccine which we released passed the most rigid safety tests exactly as laid down by the United States Public Health Service. Our scientific and technical people in the program were injected with the vaccine which they had made, as were their children.

We have furnished all information possible to the United States Public Health Service, and since they have much information which we do not have and that no one else can have, the ultimate determination must come from them.

We sincerely hope that this determination will be that neither our vaccine nor the vaccine of any manufacturer has been responsible for poliomyelitis which has occurred following injections. If, however, that determination should be that some cases were due to our vaccine, it will not be because of carelessness or incompetence but rather will show the necessity of even more delicate testing procedures on poliomyelitis vaccine than those that have already been devised.

I can only say that those of you who have been so loyal to us will not need to make excuses.

Sincerely,
CUTTER LABORATORIESRobert K. Cutter, M.D.
President

RKC:na

Sales Offices and Warehouse Facilities: BERKELEY • LOS ANGELES • SEATTLE • DALLAS • SAN ANTONIO • DENVER • CHICAGO
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MANUFACTURERS OF VINE BIOLOGICALS AND PHARMACEUTICALS SINCE 1887

CUTTER LABORATORIES

FOURTH & PARKER STREETS
BERKELEY 10, CALIFORNIA

February 18, 1958

Dear Friends:

The first poliomyelitis vaccine suit has just recently been completed. As the press coverage has varied considerably, I am sending you a "clipping" from a local paper which is quite complete.

// This jury was remarkable. They listened to technical evidence for over six weeks. They refused to be confused. They felt that the interpretation of the law, which made it mandatory for them to find for the plaintiffs on implied warranty, was so harsh that they insisted that the following statement be made part of their verdict:

"Cutter Laboratories was not negligent,
either directly or by inference."

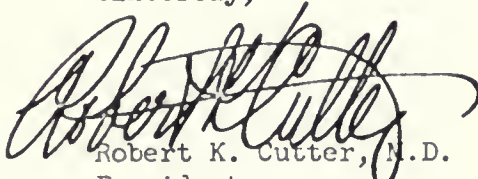
We are most grateful to them for their part in clearing our firm and family name before the lay public. It was most unjustly smeared in 1955. //

// You received a letter from me written in the midst of the polio incident, a copy of which is enclosed. Note particularly the last sentence.

I can't tell you how much I appreciate the substantial support we have had from you in the medical and allied professions throughout this entire ordeal. Even in the darkest days when no one knew what had happened, you never lost confidence. May you never have to make excuses for us. //

Again, my deepest thanks.

Sincerely,


Robert K. Cutter, M.D.
President

CUTTER LABORATORIES

FOURTH & PARKER STREETS
BERKELEY 10, CALIFORNIA

April, 1962

Dear Doctor:

Attached is a copy of the letter I wrote you in 1955. I've written you since on poliomyelitis vaccine, but believe a concluding report is in order as some have assumed, since we're settling these suits, that we must have been at fault.

Jury after jury has determined that Cutter Laboratories was free of all negligence and incompetence and had followed all of the exacting governmental regulations which spelled out in detail the best scientific procedures then known. Each of these juries listened for weeks to the testimony of the scientists who were best informed on the subject, including the government scientists who had inspected our laboratories and procedures before and after April 1955.

I have no delusions of being a prophet, but what I said in the next to the last paragraph of my first letter to you turned out to be truly prophetic: the best tests then known were not sufficiently sensitive to uncover vaccine which might cause trouble in an unusually and extremely sensitive child.

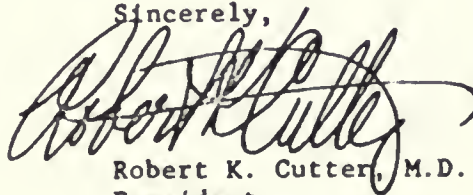
In spite of being absolved of any negligence or incompetence, the courts have held us responsible on a legal technicality - implied warranty (liability without fault) - a doctrine which holds us responsible for scientific knowledge which did not exist at the time. So we had no recourse but to make settlements when fair settlements could be made.

At this writing, 54 suits against us for an amount of \$11,813,000 have been settled for \$3,049,000. Our insurance covered us for \$2,000,000, so we have had to pay out \$1,049,000. There remain six suits against us, none of them involving alleged injuries at all comparable to most of the settled cases.

The newspapers have reported all this with varying degrees of accuracy and completeness. Some have been hopelessly inaccurate, incomplete and confusing. Some have indicated we are on the verge of bankruptcy. I am glad to report that, while we will have a difficult financial problem, we have licked difficult problems before and we can lick this one.

The principal reason that we will be able to lick it is the loyalty you folks in the medical and allied professions have shown us through this difficult period. I can't thank you enough.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert K. Cutter".

Robert K. Cutter, M.D.
President

Enclosure

DR. BOB'S PRIMER ON NEGOTIATIONS

Negotiation is decidedly an art and definitely not a science. If the negotiation is between two organizations, the higher up in the organization that the negotiations are conducted the more likely that they will be successfully concluded with a fair and equitable agreement both ways. The reason for this is clear. The higher in the organization, the less can the men be bothered with petty, inconsequential details.

Furthermore, the higher they are the more likelihood there is to be a mutual trust.

The fewer the people involved in the negotiations, the more likely the success. (The greater the number, the more likely are petty and inconsequential details to be introduced).

Good negotiation is not likely to be conducted when the #1 man in one firm is negotiating with the #2, #3, #4, or #5 man in another firm. One man meeting with another man is the best formula for success, two men dealing with two men is next best. Never allow the other side to have more men than you have on your team.

No matter who conducts the negotiations, the final agreement should always be subject to consultation with somebody else not present. It could be the Board of Directors, the Executive Committee, outside attorneys -- somebody. (In the past when I was negotiating, I always "had to talk it over with Ted and Fred," even though I had their full authority to conclude the negotiations on my own.) Having someone to refer the matter to allows the negotiator to take the position, "Well, I would go for that but the Executive Committee wouldn't buy it."

Assuming negotiations have reached substantial agreement, it is well to say, "If the Executive Committee approves, I will write you a letter covering everything, I will send a duplicate and if it is the way you

- 2 -

understand it, date and sign it. If not, you write it in duplicate the way you understand it and if we still have a disagreement we can toss a coin or let John Doe settle it for us."

If the other side is going to insist on a legally executed agreement, you would say, "Okay, we will have our attorneys draw it up exactly as we have agreed, but we will insist that they not add a lot of ifs and whereases, etc. which will take care of a bunch of events which will never happen." And speaking of events which never happen, in many many negotiations I have gone through and the many many "views with alarm" on the part of attorneys, none of these "views with alarm" have ever happened.

Above all, don't let the attorneys for the opposition side draw up the agreement. If the negotiators on the other side insist, you then insist that your attorneys will draw up an agreement independently. He knows and you know that this can only end in interminable wrangling.

Above all, never never never let legally trained people do the negotiating. They are conceived in contention, born of antagonism and nursed on litigation. *

The next worst negotiators are those in the accounting field and the reason is clear by the very nature of their training. They are conceived in detail, born of minutiae and suckled on ciphers. *

And if you find a negotiation has sunk to the level where the attorneys and the accountants are sitting across the table glaring at each other because of some financial ace or legal beagle lousing up the negotiations, either cut off the entire negotiations or take some other step which demonstrates you are about to pull out. (When we were negotiating for Haver-Glover, Clif Haver had an accountant with one of the national CPA firms

* (There are exceptions of course, but how rare they are.)

as his advisor. Clif and I would come to a tentative agreement and this CPA would rush in to put a spoke in the wheels. I finally got up, put on my hat, and went to the door and said, "Clif, the deal is off. I am not going to waste my time with this kind of monkey shins." By the time I got back to the Muehlbach Hotel there was a message to telephone Clif. I did. He said, "Let's go it alone." We did and had the negotiations completed in about half an hour, fair to him and fair to us.)

Now as to the attitudes of negotiators. The more you can build the other guy up as a big tycoon and put yourself down as a little boy from the country, the better off you will be.

If you are trying to sell something, try to sell it in sunny weather literally or figuratively.

When you are trying to buy something, wait for stormy rainy periods. (Don't laugh -- it makes a difference. I waited three weeks for a good rainstorm before buying the Pan American buildings.)

If at all possible, try to have the other people come to you rather than your going to them. If you must go to them and if it is possible, it is best to do it at a meeting attended by both. (Many times have I sat on a bench along the tennis courts at The Greenbrier or in a cabana chair at Boca Raton waiting for the man I wanted to talk with to come and sit down beside me. Only after exchanging social nothings would I lead obliquely into the subject I was anxious to discuss with him. But remember -- he came to me, not I to him.)

Is the best place and time for negotiations the first thing in the morning between two strangers? Hell, no! The best time for negotiations is after a couple of friends who have known each other a long time have had a real good dinner. They will then be happy and contented and will be anxious

to get the darned thing over with. Details are far less important at this time. But the main things will be adequately and fairly covered.

October 8, 1971

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