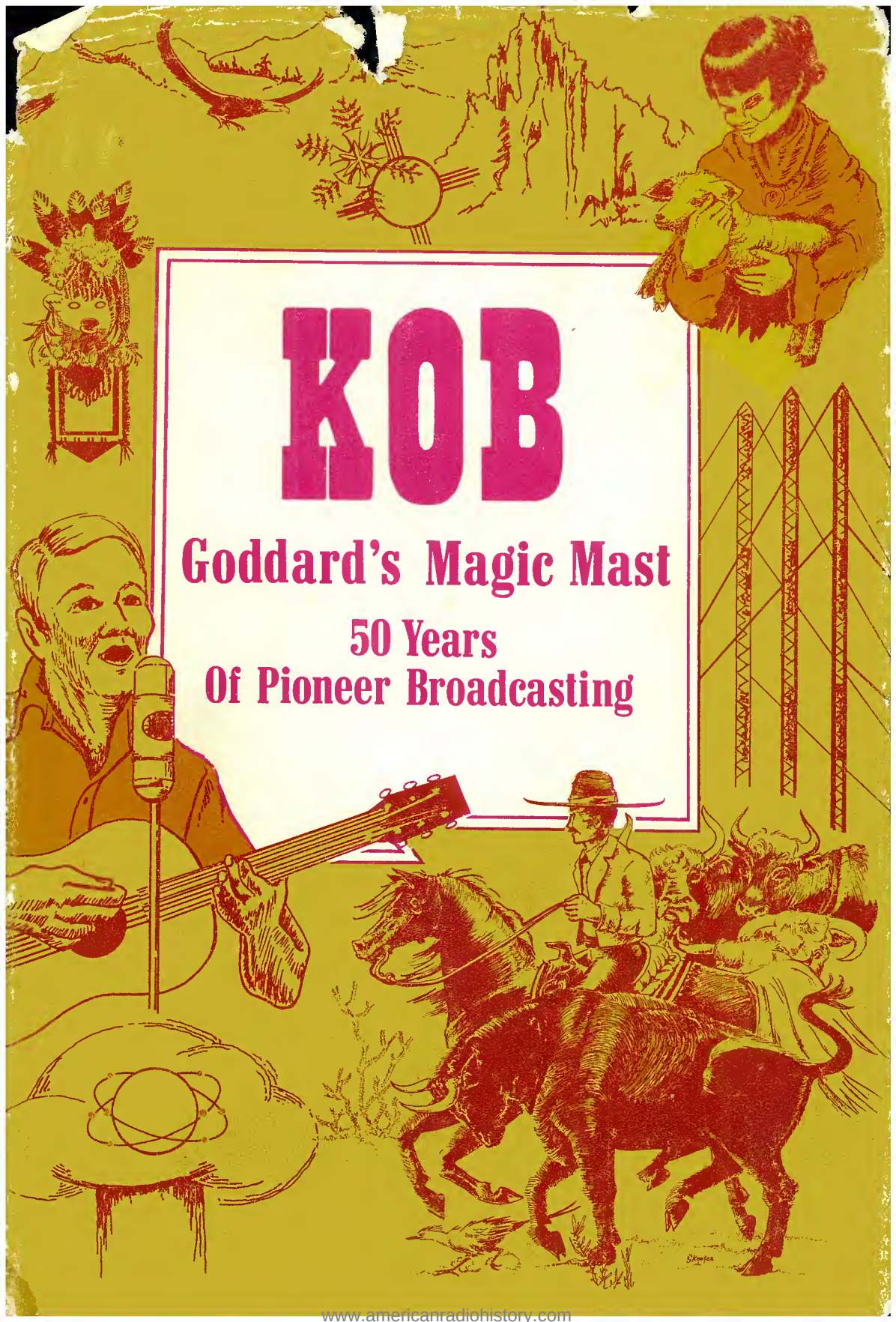

KOB

Goddard's Magic Mast

50 Years Of Pioneer Broadcasting

KOB

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GODDARD'S MAGIC MAST

Fifty Years of Pioneer Broadcasting

by

ANN M. VELIA

Published through a grant by Hubbard Broadcasting Corporation and the New Mexico Foundation, Inc.

To Mokie and Dad,
with love

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FOREWORD

THE HISTORY AND NOSTALGIA that are contained in the pages that follow are reminiscent of the famous quotation that has been used by many, in many different forms, but still holds its truth, "The Past is Prolog." Certainly all of us at KOB, from the Chairman of the Board to the newest employee, feel more towards KOB because of its history and the meritorious service of those who preceded us. As you read of the struggles, the setbacks and then glorious achievements of all those who had a hand in KOB's destiny, it might be wise to consider that, while broadcasting is a constantly changing industry subject to different pressures daily, it still is the dominant influence on American life, and for the better. All the dreams of Dean Goddard have come true, but today there are new men with new dreams, new ambitions. Yet all of these ideas and ideals reflect the same passion our founder had. That is to make KOB the best communicator possible, for the people its various facilities reach, to bring them the finest programming possible, and to be their voice in truth. KOB Radio has always been considered by its peers one of America's great radio stations. It will continue as such because we have inherited a tradition that we treat with respect and admiration—a tradition that we are pledged to preserve.

Ann Velia has written a brilliant history of KOB. The New Mexico State University Press has put it to print, for which we are grateful. All of broadcasting can learn from, not just the words of the author, but from the "Prolog" that is presented herein.

RICHARD P. MCKEE
General Manager KOB Radio
September 12, 1972

Acknowledgments

THE DANGER of forgetting to acknowledge all the help you've received is particularly acute when you don't know right at first you're going to write a book. But the help I received was so generously forthcoming that my many sources come easily to mind.

Heading the list must be Harvey C. Jacobs, head of the department of Journalism and Mass Communications at New Mexico State University. He's a teacher who doesn't notice when the contract has expired. I've been off his class roster for six years, but he's still providing direction, encouragement, and criticism. This book wouldn't be between covers without his help at every step, beginning with the idea.

Earl Goddard made possible the major part of the book; he not only provided family and personal material on his father, but also helped with interpretation and historical perspective. Like his father, Earl is a Man On The Go, so I'd like to add thanks here to Barbara Goddard for taking and relaying all the telephone messages to her husband.

Robert W. Stewart of Dallas, Texas has been a gold mine of information, pictures, anecdotes, and cheer. His interest in this project, evidenced by massive correspondence and even a voluntary trip to Las Cruces to chat with me about Dean Goddard and KOB, has been invaluably heartening.

Kenneth Goddard made a tape recording of his memories of his father, and he also conducted a tape interview with his father's cousin, which provided the genealogical information on the Goddard family.

Dr. Roy Goddard has been a generous and encouraging correspondent, as have Mr. Robert Buell of Monterey Park, California and Mr. Joe Montoya of Santa Fe.

Mr. Elliot N. Sivowitch of the Smithsonian Institution's Division of Electricity answered some important, elusive questions and voluntarily sent additional material pertaining to Dean Goddard and to KOB. Gerry Leiber of the Mountain View Public Library answered what

must have seemed like an odd assortment of questions with perfect grace and great promptness.

People from New Mexico State University and Las Cruces who helped were Mr. Jesse Morgan, Professor John C. Overpeck, Dean M. A. Thomas, Professor H. A. Brown, General Hugh Milton, Colonel A. W. Chilton, Mr. Willie Preciado, Mr. Dave Rodwell, and Mr. Jacobs' secretary, Mrs. Martha Bullock.

Mrs. Cris Freeman doubled the effectiveness of my trip to Albuquerque; she dug through dusty files, jogged memories, made telephone calls, served coffee, and suffered a thousand impositions cheerfully; she has also done considerable follow-up work in providing additional materials and information.

George Johnson, of course, was the reason I went to Albuquerque. He relived forty years of KOB history in the time I spent in his company, all in his leisurely, gentlemanly way that made light of all the work I interrupted.

Corinne Burleson gave precise business details and the woman's angle on several phases of KOB history while making us feel very welcome. Frank Joyce, Fernand A. Bibeau, Sam Tikkanen, Sue Barton, Tom Dunn, Joe Reel, Pat Riley, and Jimmy O'Neill gave aid and comfort.

Richard P. McKee and Stanley S. Hubbard freely gave their valuable time and follow up help by air-mail, special delivery.

Last and dearest, Betty Mathis Armstrong and Lucy Mathis handled interviews and library research under long-distance direction; Carol Mathis did legwork cheerfully; Charlotte Mathis shared my week in Albuquerque and proved to be as good a journalist as she is a mother; my husband, Jim, has my gratitude for many a reason; and Patricia Verheul proofread the first draft and reacted the right way at the right places.

To all of you, heartfelt thanks.

Ann M. Velia
Mountain View, California
May, 1972

Preface

I

SOME OF THE QUESTIONS I'm most often asked can't properly be answered in the text of this book, such as: Was Ralph Goddard, the radio pioneer, related to Robert H. Goddard, the rocket pioneer?

Their widows have agreed that "all those New England Goddards are related," but the relationship is probably distant. In 1667 William Goddard and his four sons came to America from England and settled in Massachusetts. Like others of that time, they were principally self-sustaining farmers, though as technology and specialization progressed, so did the Goddards. One branch of the family moved to Connecticut, where they built a fine reputation as furniture makers. Another Connecticut Goddard was a newspaper publisher in the pre-Revolutionary days, with a British price on his head for his anti-British editorials. When the country went to war, Goddard joined Washington as an aide and his wife and daughter continued to operate the inflammatory press, two of the earliest women publishers. That same Goddard was eventually appointed to organize the federal postal delivery service.

Robert and Ralph were both descendants of the Goddards who remained in Massachusetts, and who, in the main, became manufacturers and factory owners.

Closer than the family relationship were several parallels in the lives of the two men. They were of the same generation (Robert was ten years older than Ralph); they both grew up in Worcester, Massachusetts; they both attended Worcester Polytechnic Institute, where they both studied engineering; and they both came to New Mexico where they did their major work. Ralph came in 1914, Robert in 1930, the year after Ralph's death.

People also ask me, "whatever happened to . . . ?"

Frances Margaret Gascoigne Goddard, Ralph's widow, stayed in New Mexico after her husband's death. She maintained the family home in Mesilla Park until all her sons were grown and educated,

when she took an apartment in Las Cruces. She remained there until 1968, when she moved to Albuquerque, near her youngest son, Roy.

Dr. Roy Franklin Goddard received his B.S. from NMA&MA in 1940, and his M.D. from the College of Physicians and Surgeons at Columbia University in 1949. He is director of the Pediatric Research Department of the Lovelace Foundation in Albuquerque, and member of the attending staff in Pediatrics at Lovelace Clinic, medical director of the Pediatric Pulmonary Center of the New Mexico Regional Medical Program, and the New Mexico Cystic Fibrosis Center. He is also clinical associate in Pediatrics at the University of New Mexico School of Medicine. He is inventor of the Goddard-Bennett-Lovelace Infant Hand Resuscitator.

Earl Gascoigne Goddard followed his father's career choice as an electrical engineer. He is employed by Applied Technology Division of Itek in Palo Alto, California. He received his BSEE from NMA&MA in 1939 and a master of arts in electrical engineering from Stanford University in January, 1947, and a professional engineer (electrical) degree from the same university in October, 1947. Like his father, he spent several years as an educator before settling in commercial engineering. He taught at U. S. Naval Postgraduate Schools in Annapolis, Maryland and Monterey, California, and was assistant professor at Duke University for a year and instructor at Rice University for a year.

He is president of the board of directors of the Foothill Electronics Museum of the Perham Foundation at Foothill College in Los Altos, California.

Raymond Goddard earned his degree in economics at NMA&MA (1936) and now makes his home with his wife in San Antonio, Texas.

Kenneth Ralph Goddard is a bio-engineering and hospital consultant engaged in functional planning, criteria and design for environmental and contamination control; bio-engineering for medicine and industry, and engineering research. He is married and his home is in Savannah, Georgia.

When I've mentioned my work on this book, the usual challenge is: "How did you get interested in that?"

While I was a student at New Mexico State University, the Society

of Broadcast Pioneers asked the Department of Journalism for a paper on KOB's campus years. I got the assignment as a senior research project. In the course of uncovering the technical story on this nearly-forgotten era in our campus history, I came across some interesting sidelights about Dean Goddard, which I shared with the Department Head, and he suggested: "Why don't you write Dean Goddard's biography?"

It was just a suggestion, one I thought would fade quickly like most other advice to graduates does, yet I could never throw away a note, and could never look at the resulting clutter in my closet without feeling some motivation toward beginning the book.

My husband's post-graduation job brought us to California, just a stone's throw away from Earl Goddard's home. Another nagging stimulus— how could I *not* pursue the biography when Earl was so handy? Earl not only had boxes of his father's memorabilia, he also solicited recollections from his brothers, he provided me with background resources, and he made corrections and suggestions in my copy.

So I got the biography together and sent it to the University. In the subsequent refining and editing it was decided to approach KOB about publishing the book in cooperation with New Mexico State University. It seemed such a timely move during KOB's fiftieth year.

Therefore I went to Albuquerque to see what had happened since KOB left the campus.

II

George Johnson is a tall man, important in bearing, with a shock of stunning white-blond hair. He celebrated forty years of service to the fifty-year old station in 1972. His interest in radio goes back to his early boyhood in 1915, when a neighbor introduced him to a spark coil receiver.

As Johnson led us through KOB's maze-like corridor, we passed a veritable "wall of awards" — documents and plaques praising KOB's news service, its locally produced commercials, its farm and outdoor news coverage, its public service broadcasts — which made me ask Johnson about his personal awards.

"I don't get any awards." He grinned, giving away the truth that paper-and-brass awards hold little value for him. "The rewards I get come from driving 'way out in the country somewhere, down in a valley, maybe, and seeing a TV aerial on top of a little house, and knowing that the people who live there are getting a good picture from our station. Television's important to those folks," he reflected. "Why, some of those little towns don't even have a motion picture house."

He moved leisurely to his massive, tidy desk, set diagonally across one corner in an office he shares with chief engineer Fernand Bibeau, studio supervisor Sam Tikkanen, and secretary Cris Freeman. Behind him on a console stood a life-size bust of Jim Thorpe, sculpted by Johnson's mother, and a large, old-fashioned microphone relic from Johnson's early radio days. A small discreet brass plaque proclaiming him a life member of IEEE hung on the wall. Johnson looked longingly at a cardboard carton on his desk, which contained a necessary replacement part for one of the fifty or more "translators" in the Colorado-New Mexico-Arizona-Utah area which pick up signals from the Sandia Crest transmitter and "translate" them to a different channel which carries KOB television to remote vicinities in the four-state area. He would personally dispatch the part as soon as he was free. We took the hint and excused ourselves, and quizzed Cris about Mr. Johnson's awards.

"Of course he gets awards!" she said, smiling fondly at her boss of ten years as he pulled out a pair of reading glasses before addressing the package. "I don't save them, though. These are some of the things I do save." She hauled out an eight-inch-thick folder of letters from KOB's radio listeners. "These are verification requests from radio hams all over the world who report KOB programs they've heard and ask for acknowledgment from us. Look at this one, though."

She displayed a letter, obviously from a youthful "ham" which mentioned only that he heard the station's call letters on his set, and asked for a "DX". The attached reply from Chris, along with refusal to verify, included a step-by-step outline of the information hams should furnish when asking a station for acknowledgment, and a sample copy of a "good report." Hams who satisfy Cris' stern stand-

ards receive a bright yellow DX "Verification of Reception" card which, on behalf of management, invites the listener to visit the station whenever he happens to be in Albuquerque.

That thick file represented George Johnson's "rewards." And Cris Freeman's individually answered letters to radio listeners represents the quality of KOB personnel. They are *interested* people, warm and kind in spite of the demanding workload of the communications industry. There are many old-timers who have held on through the ups and downs of the industry, the dramas of KOB's own survival tests.

Management, broadcast personalities, program directors, newswriters, advertising salesmen, all the creative talents demanded by modern communications are vital to the competitive effort and are earning for KOB top marks for excellence in every department. Accountants, secretaries, traffic managers, precision-bent technicians keep the process moving smoothly under the critical auditing of governmental regulatory bodies, competitors, advertisers, audiences.

But it was the engineer who created the reason for the whole show. In the beginning, there was the engineer.

The Goddard Years

CHAPTER I

The Model Train

RALPH WILLIS GODDARD'S usual costume of sturdy trousers, leather jacket and high boots was warm enough, but his bare hands felt shrunken and bony at their tedious task of setting spokes in a recently-uncrumpled bicycle wheel.

His workshop—three frame walls appended to the back of his house—could claim neither beauty nor creature comfort. The roof was snugly shingled and the plan showed thoughtful economy, with roughly finished bins and shelves (all spilling tools, spare mechanical parts, lengths of wire and other oddments of a tinker's trade) lining two walls; a model train track curved around the other two. A single naked globe overhead bravely augmented the whitish glow of winter twilight at the small windows; the room was dim and cheerless, with odors of gasoline, oil and turpentine hanging heavy in the cold air.

The workshop was his retreat, a place to escape the confusing friction between his parents, which was growing again after a short Christmas truce. The problem revolved around opposing ambitions. Mother, sensitive, artistic and sentimental, had great pride of family. Her forebear, John Woodbury, had been a signer on the Mayflower Compact, and her marital alliance with the Goddard name had added a wealth of background to her treasury. The Goddards had been in New England since 1667, when William Goddard and his four sons had settled in Massachusetts. She liked to talk about antecedent accomplishments to her own sons, Ralph and Herbert, as though to assure them good paternal blood flowed in their veins, for their father,

Frederic Emmons Goddard, broke the pattern of the Goddards' ascending heritage. He was merely a toolmaker in one of the Worcester mills, and worse, had an atavistic ambition to return to the soil and become a farmer. Herbert let the fuss wash over him. He was grown, employed, able to pick up and travel when he felt the urge and the inclination to spend the money. Ralph, whose eyes were on the future, found the question of family history unmeaningful, but living amid the clash of two strong personalities couldn't help but affect him. The workshop behind the house became his sanctum, too cold, too dim, and too crowded to attract his parents' company. Well, hardly ever.

"Ralph! Ralph!" Kate Woodbury Goddard rapped at the side window as she called, and without giving him time to leave his painstaking work and open the door to her, she burst in. Her new shawl, a Christmas gift from Herbert, hung like a cowl around her fair face and over her shoulders. Annoyance made the faint vee lines in her forehead pronounced. "Get in the house, Ralph, and change your clothes. What

Ralph Goddard's boyhood home: 15 Abbott St., Worcester, Massachusetts.

Goddard's workshop behind his home in Worcester.

are you thinking of? The reporter will be here any minute and you can't receive him looking like *that*."

Ralph's back stiffened with the exaggerated sufferance of adolescence, and he carefully settled the wheel on a worktable until he could return. "I'm sorry, Mother, I didn't realize it was getting so late."

"It's terribly untidy here, Ralph. I thought you'd come out to straighten it up a bit. I hope the power shed isn't so messy."

Ralph looked around the workshop in open-mouthed injury. It couldn't be neater, with everything arranged in the handiest order with reference to the projects concerned. Perhaps the *number* of projects—the broken bicycle, the sanded canoe leaning against the wall, his telegraphy equipment in one corner, the outboard engine awaiting cleaning, the model train—looked like clutter to a woman. He closed his mouth and kept to himself the opinion that the male reporter would see the distinction between "untidy" and "busy."

"Don't worry, Mother." He held the door for her, then locked his shop behind him. He let his gaze linger on a separate small building, the power shed, in the back yard as they crossed to the house door. "He's not coming to check on my housekeeping. Anyway, I felt I had to spend some time on the bicycle today, because I promised to have it repaired before Sunday."

Mrs. Goddard shook her head in silent distress until they reached the house. She removed her shawl, folded it and put it out of sight. "Do hurry, Ralph. And wet your hair down good." She spared him further instructions in favor of returning to the front of the flat.

The warmth inside emphasized how cold he'd become in the workshop, and Ralph rubbed his hands briskly as he hurried to his room.

Mother had laid out clothes for him: his best suit, a shirt and high collar starched to the point of agony, his Sunday shoes. He dressed quickly and, apart from his fine rust-colored hair, which fluffed like down in the heated room, he looked very smart. At seventeen, when many of his contemporaries were finding fast shoots of growth in arms and legs awkward to manage, he had stopped at the height of five feet, eight inches. He was lean and very erect, with pale-lashed blue-green eyes and a smooth, ruddy complexion. He wet his hair and brushed it until it lay flat against his skull.

His outward elegance belied a feeling of gloom. So much ado just because he had had a little success with a telegraph experiment last year — 1903, the same year Guglielmo Marconi had completed his Massachusetts station at Wellfleet, and repeated his earlier feat (from Newfoundland) of communication with England.

Ralph's conglomerate of spark coils, keys, coherers, and miles of wire had sent an electrical impulse across the span of a few feet, whereas Marconi had spanned the Atlantic. But Ralph's accomplishment was good enough for his ninth-grade teacher, who compelled him to be the main show at graduating exercises from the Sever Street ninth grade school. Despite his modest assertion that his work was merely the outgrowth of a scientific inclination and an overdeveloped curiosity: a school boy's trying-on of something new.

And now this. A newspaper reporter coming to look at the model train. Ralph could already imagine the outcome. Patronization, over-hearty exclamations of admiration, and a polite two-or-three-line filler on the back pages of the *Worcester Evening Post,* which some schoolmate would see and pass around for all his chums to hoot at. Worst of all Mother, after her special-company preparations and keen excitement, would feel betrayed.

It would be better if the reporter didn't write anything at all. Maybe he wouldn't; there were so many important things going on in this mechanical age: the railroad, with its extensive cross-country system, reaching incredible speeds; the horseless carriage up-and-coming. New York state had already set legal limits to hold the machines back to ten and fifteen miles an hour in populated areas, and to twenty miles an hour in open country, and last year the vehicle's durability had been proved in a marathon 52-day coast-to-coast trip from San Francisco to New York City. And just last December, the Wright brothers added a new dimension to man's mobility with their spectacular demonstration of motor-powered flight.

Then, electrical progress. The commonplace telephone with its cumbersome equipment being eclipsed by the new work with wireless communications, with shore-to-ship weather advisories and ship-to-shore calls for assistance from imperiled seacraft promising to make the water a safer place for man to voyage.

The Model Train

How much enthusiasm could a modern newspaper reporter show for a model train built by a schoolboy? It was one thing to show it off to young cousins and friends as an amusement, like some of the "shock" gadgets he'd built . . .

Well, the reporter was coming, and Ralph would have to get through the interview with as much grace as possible.

He walked into the parlor. His mother was still fussing, plumping pillows, straightening candles on the Christmas tree, flicking imaginary specks off tables. His father and Herbert (as uncomfortable as he, in suiting and starch) sat close before the wood stove, Father poring over his new almanac with as much concentration as if he had crops to sow, Herbert glancing curiously at a newspaper.

Herbert peered over the top of his paper at his young brother. "Guess we'll be reading about your train in the next edition, hey, Ralph? Going to have a celebrity in the family!" Herbert grinned as his remarks hit target. Ralph flushed and made a disgusted wave of his hand at him. "If you get rich along with your fame, don't forget about paying for those six postage stamps you borrowed. *I'm* not rich."

Having satisfied both brotherly impishness and self-interest, Herbert returned to the newspaper. Ralph made a fruitless search for his new copy of *Modern Electrics*. All the magazines were put away out of sight, however. He'd have to sit and stare until the reporter came. He poised over an easy chair.

"Don't sit down, Ralph," his mother warned. "I don't want you to muss your clothes." Then, with stiff affection, "You look very nice."

Ralph sighed and began to pace the room. The parlor was fashionably overcrowded with upholstery, excellent cabinetry, rugs, paintings (some of the paintings his mother's original work), and china-shaded electric lamps everywhere. The Christmas tree dominated the room and gave forth pleasing scents of drying resin and cranberries. A music stand and a ladder-backed chair holding Ralph's cornet stood in the opposite corner. Ralph walked over and touched it, with an amused glance at his mother. Why she should leave the cornet sitting *untidily* on the chair, and hide the magazines, was one of the Mysteries of Women. Another was her present position at the window, peering out

at the street through the tiniest slit at the edge of the curtain, a practice which would have earned Ralph or Herbert (or even Father), sharp rebuke.

"There's — oh, the lamplighter," she said impatiently. "And someone else . . . it's *him,* Ralph!" Ralph started with measured dignity toward the front hall, but his mother scurried past him and nearly opened the door before the knock sounded.

"Mrs. Goddard? I'm from the *Evening Post.*"

Kate Goddard gave the heavily-bundled reporter her reserved smile and held the door wide in welcome. The reporter entered, stopped short in the hallway, and glanced admiringly at the bright, steady light from the electric wall lamp while his snowy boots puddled the polished floor.

Ralph offered his hand, introduced himself, and began to divest the reporter of his winter wrappings. His mother, moistening her lips often and toying with the lace at her throat, made embarrassed small talk. Soon as the guest's hat and coat were hung, and his muffler, overshoes and umbrella spread to dry, Ralph took charge.

"I expect you'll want a look at the train, first thing, sir. Go right through the parlor, and you can meet my dad and brother on the way." He gestured for his mother and the reporter to precede him.

Herbert and Mr. Goddard rose when they entered, though Mr. Goddard still held his almanac in his left hand with his index finger marking his place.

"This is my father, Frederic Goddard," Ralph said.

Mr. Goddard was slim and solemn, with a sag in his stance and a furrow in his brow which gave him an aura of discontent; he was pleasant and gracious, however, and a furtive pride warmed his features as he stood between his two sons. He extended his firm, hard hand in greeting, then drew it back to pull Herbert into the circle. "My other son, 'Bert."

Herbert, rather prim but assured, had a vigorous handshake, a quick, tight-lipped smile, and a fading spark of youthful adventure in his eyes.

Mrs. Goddard settled uncomfortably on the edge of a chair near the door, and her fingers again found her lace jabot. Her position was

unobtrusive, but she was a Presence, and the men turned toward her. The reporter grinned amiably, and their eyes discussed whether she should offer, and he accept, a refreshment this near to the supper hour.

The youngster settled the question. "Sir." He crossed to the back of the parlor, and the look on his face made it clear he had little patience with drawn-out amenities when there was business at hand. "We'll have to go out back to see the train, sir. I have a little shop."

* * * * *

From *The Worcester Evening Post*, December 31, 1904:

Worcester boy of 16 owns and runs an electric road*
Built it himself — Ralph W. Goddard is a Wizard when Doing Things with Electricity

The building of a complete electric power plant, and the completion of a practical working model of an electric railway line, including track, switches, trolley wire, cars and stations is the feat recently accomplished by a Worcester boy, Ralph W. Goddard, 16-year old son of Mr. and Mrs. Frederic E. Goddard, of 15 Abbott Street. Young Goddard is a natural mechanical genius, and his mechanical work and electrical experiments are considered remarkable, by the friends and neighbors who have seen the result of his work. It is considered still more remarkable from the fact that the boy has never had a day's instruction or teaching in mechanics or electricity. All that he has accomplished come as a result of careful study, observation and practical experiments done during his spare hours.

Besides the erection of the power plant and the electric railway, he has experimented in wireless telegraphy, built a practical running electric launch, fitted an electric motor to his canoe and equipped his home with electrie lights.

The Post reporter called at the Goddard home thc other day and was shown thc result of the work done during the last few years by the young electrician.

He was first shown the shop in the back room of the house. Here all sorts of electrical equipment and devices met his eye—wires, switchboards, electric lights, bells, telephones, etc., and the electric railway.

The railway track and stations are built on shelves on two walls of the room, with a decidedly sharp curve where the walls meet. At one end of the track is a large station with car shed and waiting room for passengers. It's a double track road, with switches, and trolley wire.

The motor car and one trailer that comprise the rolling stock of the road are the crowning features of the boy's work. The motor car is built on the model of an electric locomotive about 10 inches long. It is equipped with a small but

*Ralph Goddard was born April 20, 1887, in Waltham, Massasehusetts. He was actually seventeen years old.

powerful motor capable of pulling one or more trailers. The car was built from cigar box boards and shows clever cabinet work. The difficult part for a boy to accomplish was the building and connecting the motor. All this was done with his own hands. The work was more than usually difficult on account of the small size of the car. The car is equipped with a controller, with six speeds, with reverse, a headlight and automatic coupler, a feature that might well be added to the equipment of some of the larger street cars. It has a miniature headlight powerful enough to light up the entire length of the several yards of track.

It also has an ingenius (sic) device by which the car is kept running continually, although the track has two dead ends. The device reverses the controller when the end of the track is reached and the car starts on its return trip when the end of the line is reached. The road was originally built to be run from power furnished by batteries, with a six-volt current. This was before the building of the power station, which now furnishes a 50-volt current for the running of the road and the lighting of the house.

To fit the cars and motors to the new current the motors had to be completely overhauled and the armature rewound. Young Goddard has recently been experimenting with the amount of load and the degree of grade that the car will climb with the new power. To do this he has elevated one end of the track to quite a stiff grade and found the same difficulties met with by the larger electric cars on similar grades. To a certain grade the car would climb quite merrily, but above that the wheels would slip and whirr around and the car would not move.

He later experimented with putting several pounds of lead on the car and found that the added weight helped keep the car down and gave the wheels a better grip on the rails on the stiff grades. In the room is also a large switchboard equipped with at least a dozen switches connecting the power dynamo with the different devices, including the wireless telegraph instrument.

In this room are also his electrical supplies, for friends and neighbors, learning of the youth's skill in electricity, have called on him from time to time to repair electric bells, defective wires, and put in new apparatus for them, and now he has quite a large business in this line. The money earned in this way will go towards tuition at the Worcester Polytechnic Institute or some other technical school, that he hopes to attend, on the completion of his term in the high school where he is now on his second year.

Young Goddard is now busy changing the equipment of his switchboard to fit the 50-volt current from the new power plant, as it was previously fitted for the six-volt current from the batteries. The reporter was shown the power plant, all of which was built by the boy's hands. The building is a neat board shed with shingled roof. It is about 12 feet long and six feet wide, giving plenty of room for boiler, engine, dynamo, work bench and small wood saw, with which the family wood and kindling are cut in proper size of the stove by the power, from the engine. The power plant is the young man's pride.

The boiler that furnishes the steam is the relic of a defunct automobile, and very serviceable, as is shown from that fact that it is tested to carry over 200

pounds of steam. Young Goddard had fitted over the boiler to burn hard coal instead of gasoline as originally planned.

The engine is a three horsepower marine engine originally intended for a small power launch and furnishes plenty of power to run the 300 watt dynamo (that was built entirely by the young man), with the exception of the castings which were bought. The dynamo furnishes current enough to light the home and supply power for running several fans, and keep the electric railroad running when a demonstration is called for. The house and power station are connected by telephone. Goddard has recently been experimenting in building a sparker from a gasoline motor. His experiments in wireless telegraphy have been successful and his apparatus worked in good shape. It is not in running order just now, as he is now building a larger instrument.

Two years ago when he graduated from the Sever street ninth grade school he was valedictorian of his class and his subject was wireless telegraphy.

CHAPTER II

By Land and By Sea

RALPH ENJOYED THE REACTION to the article. None of his chums hooted at it; in fact, they gave him a few days of respectful treatment as a slightly-loftier-than-average fellow around the schoolgrounds. A flurry of new customers left broken toys, bicycles, tradesmen's gadgets, and household appliances at the little shop at 15 Abbott Street.

The business boom, like the high school adulation, was short-lived. There were repeat calls, however, and with a bank of steady customers, Ralph's hopes for a college education seemed more imminent. And he easily paid his postal stamp debt to Herbert Henry Goddard.

Shortly after he began his senior year at Worcester's English High School, in the fall of 1906, he found his way onto the pages of the Worcester newspaper again:

Motor Tricycle

R. W. Goddard and Fred Fay Make Detachable One

A motor tricycle attracted attention on Main Street yesterday afternoon. It is the work of R. W. Goddard, electrician, 15 Abbott Street, with the assistance of Fred Fay, who appeared riding in the machine with Mr. Goddard yesterday.

The young men working in Goddard's workshop made the tricycle attachment in about a week's time. It consists of a steel framework attached to a new motorcycle. By removing three bolts, the attachment can be removed from the motorcycle.

The frame of the attachment has an axle, at the end of which is a bicycle wheel, and built between this wheel and the motorcycle is an easy seat perched on a big curved spring, which Fay said yesterday rode as easy as a feather bed.

Mr. Goddard says they have tried the machine out on the hills and on the country roads, and it goes along just the same. The smaller gears are used on

hills and soft roads, but while speed is sacrificed a bit, there are two persons getting there at the same time.

Just how Messrs. Goddard and Faye have arranged for the Sunday use of the machine through the summer is not known, but it is not anticipated that they will ride together.

The motorcycle weighs 110 pounds, and the attachment about 65 pounds, but the motor is powerful enough to carry the whole thing along at a spanking pace.

The invention was also written up in the Saturday, April 13, 1907 issue of *The Bicycling World Magazine*:

What is to many riders one of the chief recommendations of the motorcycle is to others its chief drawback, namely that it accommodates but one passenger. To some this affords just the supreme independence of all the rest of the world they most desire, while to others it is something of a handicap. To such, of course, the tri-car principle appeals, and on this account not a little use for the added seat has sprung up.

Not being able to secure the ideal thing in this line, according to his own way of thinking, R. W. Goddard, 15 Abbott Street, Worcester, Mass., last fall set about designing one for himself. The result . . . has proved entirely satisfactory—so satisfactory indeed, that the builder has commenced producing others on order for such customers as he can command.

. . . Speaking of the excellent way in which the device has worked out in actual practice he says: "The car was run all last winter through the snow, and this spring, attached to a new Indian has done some really wonderful 'stunts', in the way of hill-climbing and speed. Outside in the country it was run about a mile over railroad sleepers at a rate of more than 20 miles an hour and came out whole. In addition to this it has stood other severe tests.

The price of the sidecar complete is $35, while for the frame and wheel without seat or box, the price is $22 . . . Besides the seat arrangement, it is possible to fit a parcels box.

The "motor tricycle" or cycle and sidecar, 1906. R. W. Goddard with Fred Fay as his passenger.

Ralph Goddard with Miss Frances Gascoigne as his sidecar passenger, 1907.

In June, 1907, the month of his high school graduation, the *Cycle and Auto Trade Journal* carried an advertisement of "The R. W. Goddard Co." offering a circular describing further particulars of the sidecar, made to attach to Indian, M-M, Yale and Armac machines. *"Does away with that lonely feeling. Prevents falls in snow or mud,"* read the ad. Also mentioned in the advertisement was the availability of the Goddard Motor Cycle Stand, an accessory attachable to the cycle, which folded up behind the rear wheel while on the road, and down and under the wheel as a stationary prop. Price of the stand, complete, $1.00.

While Ralph earned credit for the invention, good-natured, laugh-loving Fred Fay, who helped him with the assembly, gained fame as the side-car passenger in the photo which appeared in the newspaper and magazine articles, and in the R. W. Goddard Company advertisements. The Worcester English High School yearbook memorialized its two glorious seniors with the epithet: "The nurse and baby, i.e., Goddard with Fay in his perambulator."

* * * * *

Another sample of English High School creativity:

"O Ralph, the sunny-haired, did love
His Frances of Greendale
And everywhere that Frances went
He followed without fail."

Actually, it was the other way around, for Miss Frances Margaret Gascoigne was a frequent passenger in the motorcycle sidecar (presumably the reason the Worcester newspaper article reported it unlikely Goddard and Fay would ride together on Sundays).

Miss Gascoigne lived in the Community of Greendale, in a house locally known as "the Mansion." She was born October 5, 1888, in Byfield, Northamptonshire, England. The year of her birth her father, Joseph A. Gascoigne, travelled to America, to test for himself his brother's claims that the United States was a fine place to live. Joseph's wife, Selina Powell Gascoigne, remained in England with their children, three boys and two girls, until Joseph got himself established in the new country.

Joseph invented a fireproof door or shutter which he patented in 1893, and he also gained a toehold in the construction industry. Frances was six years old by the time Joseph sent for his family. Another boy and another girl were born in America, and Joseph's construction business prospered. "The Mansion" was the culmination of his long years of struggle.

For a man who began his working life as a humble mason, Joseph Gascoigne wore his new success well, although he had spent much of his patience by the time Frances reached young womanhood. One day he, Frances and Ralph were boating in Joseph's craft and had travelled a considerable distance from the harbor when the engine failed. Mr. Gascoigne, with hair an even brighter shade of red than Ralph's, tinkered with the engine, kicked at it, swore at it and backed off for a running attack before Ralph shyly asked if he could try his hand. Ralph bent down without any fuss for several minutes, examining the cylinders, adjusting gas and air, retarding and advancing the spark, and finally the engine responded.

"You've got a lot of patience, Son," Mr. Gascoigne said, still fuming with frustration. "If it'd been me, I'd ha' chucked the damned thing to the bottom of the sea by now."

Ralph's patience stood him in good stead as inventor, electrician, tinkerer. So did his steadfast pursuit of his goal—a college education—which imbued the odd jobs which came his way with as much dignity as the work he preferred: electrical wiring and gadgetry, and filling orders for motorcycle accessories. The results of his exposure in local and national publications gave him a budding flair for showmanship, and he sent out his statements and correspondence on impressive bill- and letterheads:

"The R. W. Goddard Co. — Motorcycle Sidecars and Sundries
R. W. Goddard, Treasurer"

and later:

"The R. W. Goddard Company — Electrical Contracting
R. W. Goddard, President — W. H. Drown, Treasurer"

Bill Drown, a high school classmate, joined the company briefly after they graduated, but left for more stable employment at the Worcester

Machine Screw Company. Goddard reverted to his original letterheads, and resumed the duties of treasurer as well as all other executive and menial positions.

Frederic's brother, Archibald Goddard, graduated from Worcester Polytechnic Institute in 1899 and went on to great business success in Detroit. Kate Goddard was pleased and encouraged when Ralph followed his uncle's footsteps and entered WPI in 1907. Before the end of his first college year, however, his finances were nearly depleted and he had to add a part-time job to his busy schedule. He secured a moving-picture machine operator's license and went to work at a Worcester theatre.

The moving-picture theatre was the site of his first serious mishap with electricity; the machine jammed one evening, and in the course of making repairs he touched the "hot" carbon-arc contact. The discharge knocked him across the operator's booth, stunned and sore, and with a new respect for the dangers in his chosen field.

Midway through college he added another product to the "R. W. Goddard Company" line of goods, the "Goddard Ignition Dynamo," described in the July, 1909 issue of *The Carriage Monthly*:

> We show herewith an illustration of an ignition dynamo, manufactured by R. W. Goddard Co., Worcester, Mass. This dynamo is 6 inches long by 4½ inches in diameter, and weighs 10 pounds. The output of this dynamo is sufficient to easily ignite a four or six-cylinder engine, and supply current for several electric lights or charge storage batteries. It is ball bearing and is said to run very quietly and smoothly. Carefully selected material has been used in its construction, and the best workmanship applied in its production.
>
> The field coils are form wound and treated with insulation material, while the armature is hand wound, but is similarly treated. The commutator is large and the brushes, in neatly designed holders, are of the carbon type.
>
> The price is $15.00 complete, with a six months' guarantee of workmanship and material.
>
> The Goddard company also makes a friction governor for this dynamo, adapting it to engines that vary greatly in speed. The drive may be by belt, friction, gear, or chain, but belt or friction drive is the general practice.

Monies from the sale of dynamos, motorcycle accessories, from varied shop services, and from his moving-picture operator's paychecks all went into the bank account of "The R. W. Goddard Company."

That account paid his tuition to Worcester Polytechnic Institute, a quirk made sport of by his college peers:

> A pair of high boots with corduroy trousers pushed in at the top, a nondescript affair above this, and surmounting all a shock of auburn hair — that's Ralphie . . . Aside from his hair and boots, the most noticeable characteristic is the strange hallucination that he is a corporation or a partnership, going under the title of R. W. Goddard Company. Checks signed by the company, R. W. Goddard treasurer (trust him for that) are the currency of the business.

Undeniably the "company" was every bit as effective as a prosperous parent, however, and probably more lenient when it came to accounting for expenses, for not only was the tool-maker's son partaking the elite privilege of college education, he also entered the glossy world of yachting.

The sea was one of the great loves in his life. His first boat was a canoe, which he immediately transformed into a motorboat. His skill as a tinkerer also made him a welcome crewman on larger craft, and boating consumed many of his spare hours. His interest in wireless telegraphy stemmed chiefly from its value to seamen, and he kept a personal chronology of new developments, which he titled: "Peaks in the Waves of Wireless Progress." Some of the peaks included the January 1, 1901 call for assistance (by wireless) from the waterlogged bark MEDORA; January 19, 1901, the PRINCESS CLEMENTINE's telegraph message that she had run ashore; January 23, 1901, the steamships REPUBLIC and FLORIDA collided, and response to a wireless summons effected rescue of all passengers and crew; April 15, 1912, the maiden voyage of the steamship TITANIC, the wireless report that the vessel had struck an iceberg enabled rescuers to save more than 700 lives; October 11, 1913, the VOLTURNO, burning in the mid-Atlantic, summoned ten vessels to rescue 521 persons.

Motor Boating Magazine sponsored a monthly topical essay contest for its readers, and Ralph won several times. In the February, 1910 issue, he offered his plan for a tool locker with the introduction: "Did you ever try to keep your tools from looking like a pile of rusty junk? If you have, you know how close to impossible it is. I tried it, gave it up, and carried most of my tools home . . . After getting stuck several

times with little troubles and unable to doctor up because of lack of tools, I decided that the tools must be on board, and also must be protected from the moisture. This was a problem, and it took me some time to find a solution, but it came at last and certainly fills the bill."

The solution was a three-drawered chest, waterproofed by means of a rubber gasket (cut from an old inner tube) fitted to the lid.

In the April, 1911 issue, his answer to the problem of handling ground tackle appeared under the head: "A Unique Device." The device was a davit made from gas pipe and fittings, supporting a pulley track which enabled him to handle the anchor from the cockpit by remote control.

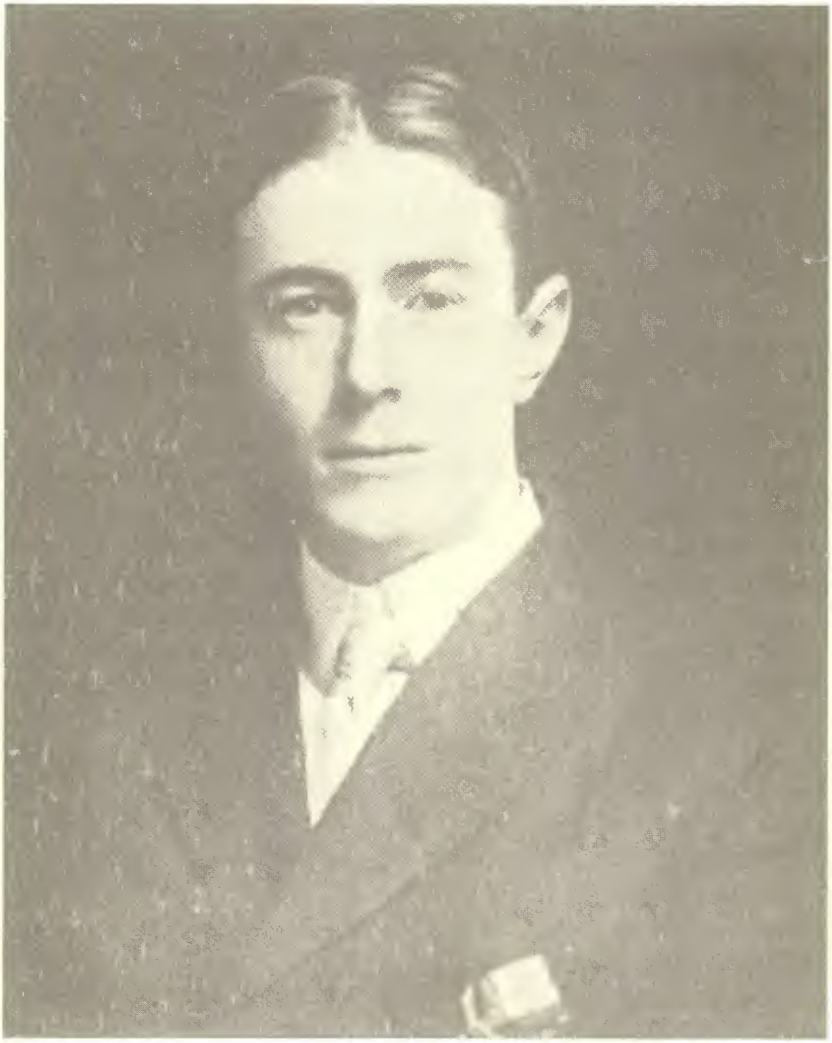
* * * * *

Worcester Polytechnic Institute satisfied Ralph Goddard's thirst for scientific knowledge and stirred a new respect for education. Four years of fundamental laws, theory, and guided experimentation built a foundation incomparable to his own practical efforts.

He demonstrated his competence in his senior thesis, "The Construction and Test of a Windmill Electric Lighting Plant." The thesis recorded his work in transforming mechanical energy from wind to electrical power, storing the power in a 60-cell storage battery, then drawing from it as needed. As part of his system, he used a new gadget, the tungsten light, which delivered economical low-voltage lighting with one-third the energy required of the older carbon lights.

His generator adapted to wind velocity within limits he found most usable at nine to fifteen miles per hour. The adaptation supplied more current with increased wind velocity, "wasted" energy in excess of that his generator would handle, and disconnected the battery to avoid discharge back through the generator at wind-speeds below nine miles per hour.

The experimental plant was assembled with borrowed equipment: Flint & Walling Mfg. Co.'s twelve-foot pumping windmill with a twenty-foot steel tower; Crocker-Wheeler Company's 125-volt enclosed, weather-proof generator, a 60-cell Westinghouse storage battery belonging to Worcester Polytechnic Institute; and he designed and built the automatic cutout himself.



Ralph Willis Goddard, 1911.

The structure was erected on top of a WPI laboratory, marking the first time a Goddard project vaulted from a college campus skyline.

Thematically, his project was designed for the purpose of lighting farm houses, country residences, and similar uses demanding small amounts of power. He estimated his system could dependably furnish 300 watt-hours per day during the summer (light wind) months, and considerably more during the winter months, when demand for lighting current would be greater. This power output, in his estimation, "should be ample for lighting the ordinary country home and still leave a surplus for such luxuries as flat-irons, fans, etc."

Typical of the empathy which earned him a trove of friends was his consideration, in designing the system, of choosing a battery which could "be placed in the hands of inexperienced persons and satisfactory service obtained from it", and the practicability of the plant resting on requirements that it be "simple, absolutely automatic in its action, reasonable in first cost, low in maintenance cost, capable of standing hard usage and neglect without injurious effects, and have long life."

The thesis read like an adventure story, with a crisis on every page: switches burned out, gears were stripped repeatedly, wind gusts tore the supports apart. He patiently remedied each setback and recorded both diagnosis and cure. His thesis was accepted, and he won the degree of Bachelor of Science in June, 1911.

He asked Joseph Gascoigne for Frances' hand in marriage. It was no surprise. Frances had been working as a clerk at City Hall, marking the days until Ralph graduated, and spending her salary on a household trousseau. The man of The Mansion had known Ralph since he began courting Frankie back in high school. He had watched Ralph pull himself up by his own bootstraps to "the educated class," and Joseph hadn't a doubt he would continue to gain success in life. He not only consented to the marriage, he offered Ralph a job, as well, as construction estimator and inspector with the firm of Gascoigne and Shattuck in Boston.

* * * * *

Ralph and Frances Margaret Gascoigne were married August 14, 1911, and made their first home in Atlantic, Massachusetts. Ralph

had mixed feelings about his post at Gascoigne and Shattuck. He was comfortable, with regular paychecks after the feast-and-famine days of "The R. W. Goddard Company," but his work as estimator and inspector rarely put to use his hard-won college education. He was deeply committed, with a wife, a home, and his first child expected in July. He held on, unsatisfied, taking respite on the sea. He bought a boat, the auxiliary yacht *Imp,* and justified the luxury by hiring it out for charter cruises, and by writing more articles for *Motor Boating Magazine.*

The child, Kenneth Ralph, was born July 10, 1912, at Quincy, Massachusetts.

* * * * *

In September, Ralph and a friend made a two-week cruise in the *Imp* from Boston to Christmas Cove. Ralph reported the trip in a letter to Ward Raymond:

"Dear Ward & Hannah:

"We left Boston Sun. morning early and it appeared to be a fine day. There was no wind and it was quite warm. About nine o'clock a little breeze came up from eastward and we put up the sail to help along the motor. The breeze freshened as we got along and at noon it was blowing some and beginning to pick up quite a sea. As we neared Cape Ann the sail lashing along the boom broke and so we had to take in sail. We decided we had better run into Gloucester as it is quite a run after leaving Thatchers until you strike the Isles of Shoals or Portsmouth. We anchored just inside the Gloucester Breakwater about 1:30. It started to rain soon after so we put up our awning and then got our dinner, which we had postponed until we should get in. During the afternoon and night it blew pretty hard and all the boats outside ran for cover. We could see them come in by the breakwater rolling and pitching on the big seas. Mon. was Labor Day and the wind still blew from east, but with reduced volume. In the morning we ran up to the town and looked about. After dinner we decided we would try it outside and see what the weather was so we ran out past the breakwater. There was a big sea on but not much

wind. We had gone about two or three miles when in sliding down the side of one sea with the dory, climbing the other side of it, the painter parted close to the dory. We got about after a while and after running back a way came around into the wind and approached the dory from the leeward. There was nothing to get ahold of as we discovered on the first try with the boat hook, so we came back again and headed for her. This time Bill steered and held my feet while I leaned over the rail and tried to grab her as we passed. Believe me, it was some trick not to run the dory down and yet get near enough to it to get ahold of her. We must have come around about a dozen times before I finally got a hold on her. I almost had her tied when a sea broke her away from me, and we repeated the performance. The next time I got her, I got her made fast all right. But now the engine, which had until now been running fine, began to skip and miss.

"We soon discovered that the whole cabin floor was afloat. After all this excitement we decided to return to Gloucester which we did. We ran up to the town and anchored. We then rummaged about to find out how all the water got into the boat, but could discover no hole or leak of any kind. The next morning the boat did not have any water in her, so we concluded that our Arron bilge water pump was not working but leaking cylinder jacket water out into the boat. We disconnected the hose from this and plugged it up so that it could not happen again, and we had no more trouble from water in the boat.

"We left Gloucester the next morning at 10:30. There was still a very heavy sea and the wind had not shifted from the East, but it had fallen so that it was hardly noticeable. The sea diminished in size as the day advanced. Had no excitement in passage to York Beach, except that we seemed to be making very little headway. We reached York Beach at just 7:00 and dropped anchor and had our supper. The next morning we were up at sunrise and took the boat up river to the drawbridge and tied up, as the tide left her high and dry we scraped off the bottom which was covered ½" with slime and grass. In the afternoon we went down to the beach and looked around. The next morning we got a good start for Portland which we reached at 1:45. Here we went ashore at the Portland Yacht Club and up town after

grub and excitement. Found the grub but not the excitement, so returned to get our supper. The next morning we were up early. Bill went ashore for mail while I took the ship over to the gasoline boat for juice. We left Portland at 10:30 and set out for the eastward. Passed Sequin Island Light 11:40 and headed a little more to the north towards the Dumaris-Cotta (sic) river. Arrived off Ram Island light at mouth of River at 4:00 and ran up to Christmas Cove. That is some place, believe me!! It has got lake Winn. beat a mile. It makes me think a lot of it, only the rugged rocky shore all cut up with fine little coves all with deep water and heavily wooded shores of pine & fir trees, greatly surpass it. It has to be seen to be appreciated. The whole coast here is like it. I used to think that Casco Bay with its islands was the ideal spot, but now I think this is the place. The river runs for miles inland, while around points on either hand are other rivers or long bays that run back inland for miles. There are lots of Islands too here. Sat. we lay around and went ashore a couple of times. Bill dug clams and we had steamed clams for dinner. Between us we ate 8 qts.! How's that? Say maybe they didn't taste good. This morning (Sun.) Bill got up and dropped a line over the side and pulled in a dozen cunners as fast as he could pull them in. We had them for breakfast. For dinner we had a clam chowder, and you bet it didn't hang around long. This afternoon we hoisted anchor and ran up the Damaris Cotta River for about an hour and a half, and then ran into a cove (Seal Cove) which ran back into the shore for about a mile and a half. We anchored the big boat at the head of the cove and went ashore in the dink and looked about a bit. Then we returned to Christmas Cove and anchored for the night. If the weather permits we will set out on the return trip early in the morning.

"Hear F. and baby are doing well. Expect to be back to Atlantic Sat. afternoon and go to Worcester over Sun.

"Your old shipmate,
R. W. GODDARD"

* * * * *

Early in 1913 Ralph put out feelers for another job. He renewed his moving picture machine operator's license in January to add some part-time income to a relocation fund, and soon secured a post as instructor in electrical engineering at the University of Nebraska. He moved his family to Lincoln and began his teaching duties in the spring semester. Again the job held mixed blessings. He was working at his profession, but in the midwest, far from the sea.

When the semester ended, Ralph, Frances, and Kenneth, nearly a year old, returned to Atlantic for a visit on their way to Schenectady, New York, where they planned to spend the summer. A faculty colleague from Nebraska met them in Boston, and Ralph invited him to accompany him on the *Imp*. He planned to sail it to Schenectady so he could berth it there for the summer.

The men set sail June 23 from Boston in the 25-foot auxiliary sloop, leaving Frances and Kenneth in Atlantic to visit friends and family. Frances received a card, posted June 24 from Provincetown, Massachusetts, which read:

"Dear Wifey:

"Left Boston last night at 11:00. Got here 9:00 this A.M. Going to bed after dinner and go around the Cape tonight. Feeling fine and weather good now. Lots of love.

"Hubby"

No other communication from him. On Friday, the 27th, the *Boston-American,* fifth edition, carried the headline, in red type: "Mystery at Sea," and in a smaller caption: "Wreck of 'Imp' on Beach . . . Monomy Life Guard Finds Famous Boston Power Boat on Sands . . . Fate of Crew in Doubt."

In part:

> The pleasure craft of costly design had been splintered by a heavy sea. How it met destruction and what became of its crew is a mystery that is baffling today every life saving station along Cape Cod.
>
> The fate of the "Imp" has started the police machinery in the whole of southern Massachusetts at work to fathom one of the strangest sea cases that has cropped out in years . . .

Skippers say the weather wasn't bad enough to cause the wreck. The most popular theory is that the little pleasure craft may have been run down by some larger vessel in thick weather and that perhaps all on her were lost . . .

A surfman at the Monemoy station noticed the wreckage strewn on the sand. Fortunately the stern was intact and on it appeared the name "Imp", Boston. The captain of the station did not report the find at Chatham until he visited that town today.

The *Boston Globe* carried the story of rescue the same day: "Rescued from Power Boat . . . Imp was abandoned off Monomoy Point . . . Ralph Goddard, the Owner and Another Picked Up . . . Are Brought to Boston on Fishing Craft—Caught in Storm . . ."

The story:

The boat was disabled in the high easterly wind of Wednesday morning. The hatch blew off and seas came aboard so that the engine was under water and could not run. Three boats approached Goddard and his crew, but although they would take the men they would not tow the boat.

The first two offers of help were refused on this account, but by the time the third offer came from a fishing schooner, the young men were glad to accept on account of seasickness and the boat filling up, so the Imp was abandoned and the men made the trip to Boston, arriving at Atlantic last night . . .

The little craft was a staunch one, having good sails and an eight-horsepower heavy duty engine. Mr. Goddard, although unfamiliar with the passage round Cape Cod, was an experienced yachtsman, and used to navigating his boat up and down the coast to the eastward. He was well equipped with charts.

Thus the yacht *Imp,* and with it Ralph Goddard's days as a New England sailor, came to an unhappy end.

CHAPTER III

Stopover: Nebraska

CAPITAL BEACH LAKE, though a far cry from the Atlantic coastline, had a verdant shore, fresh breezes, sailboats-for-hire, and the added advantage of being close to Lincoln. Much easier to spend vacation there than to take a long trip in the heat of August with Kenneth, a handsome, active toddler, just past two years old.

Vacation made little difference to Kenneth's routine; he must be persuaded to nap after lunch, even when lunch was sandwiches and lemonade eaten on a blanket-spread patch of dusty grass. The blanket formed his pallet, with a soft flannel coverlet over his legs, and citronella on his hands and face to keep the gnats away. Frances held the tot's head down firmly against her lap and began to hum.

Ralph smiled at his two brunettes. Frankie looked cool and pretty in green and white dimity, with a white bow holding back her hair. She was his opposite in coloring, with clear fair skin, dark hair, and bright brown eyes.

Kenneth peeked under his mother's arm and grinned at Ralph. Frances gave him a despairing look.

"I'll take a walk," Ralph said. "Go to sleep, young man."

Frankie's lovely voice lifted in lullaby as Ralph set off along the shore toward the dock. When he passed out of hearing distance, the pleasure of the day faded and the familiar gnawing dissatisfaction returned to his private thoughts. Where was he going? Ten years ago he'd been full of plans, and full of fight to accomplish them, and now everything was settled. Settled.

He thought of Fred Fay, his old high school pal, with a touch of perverse envy. Freddie had tried one job after another since his high school graduation, looking for his niche, and had finally settled down in a construction job. What a thrill it must be to discover all at once what was right for you! Ralph had always known what he wanted to do, had homed in on his goal, and now the thrilling small successes were in the past.

Then there was Bill Drown. Their high school classmates had predicted Bill and Ralph would have similar careers. Bill wanted to be an electrical engineer but circumstances were against him, or perhaps he wanted too many other things along the way, for he was still hobbling along. He'd held a variety of jobs, for income rather than experience, and he'd only recently begun his engineering education.

Fortune had aided Ralph; he hadn't had any insurmountable setbacks. It had been hard work and long hours to earn his tuition and to pass his courses, but his progress had been steady. The job at Gascoigne and Shattuck had been a brief diversion, one which served to reinforce his knowledge that engineering was where he belonged.

He squatted on the dock and watched a red sailboat tack to the far shore and put out. The wind was steady, cool but dry. He spread his collar away from his neck, then stood and stretched, luxuriating in the breeze. Finally he turned back to the shoreline. Kenneth ought to be asleep now, and Frankie would be bored.

Frankie didn't care much for Nebraska. There had been the Omaha tornado last March, shortly after they arrived. A great section of that city had been devastated, and more than a hundred people were killed. Even discounting disaster, though, the surroundings didn't appeal to her.

Perhaps that was part of his own dissatisfaction — that, and his junior position, and the predictability of the future. He would advance, but gradually, with every day little different from the one before. Success didn't hold a candle to the adventure of *striving*.

As he approached he saw that Kenneth was finally asleep. He waved to Frances, then his attention was caught by a bicyclist bumping along the uneven shoreline from the other direction. What in the

world? He signalled to direct Frankie's attention to the fellow, with a shrug over the cyclist's eccentricity.

The boy had dismounted to walk alongside his bike by the time Ralph reached the blanket and flopped down beside Frances. "You'd think he'd find a better place to ride, wouldn't you?"

Frances scowled. "Look at him, Ralph." The boy reached a particularly narrow part of the beach, with a fallen tree blocking his passage. His mouth started to work, and he picked up the bike and struggled with it to cross the tree. "I'll bet he's swearing, and he's going to come right by us. If he wakes Kenneth, I'll give him a piece of my mind."

Ralph sat up and frankly stared at the cyclist, gray with dust, shiny-faced with exertion. Ralph shrugged again. "Oh, let him alone. He's bent on getting someplace. Unlike me."

Frances drew in her chin and frowned at him. "What are you talking about, Ralph?"

"I was just thinking . . . you work and work to get your life arranged like you want, and think you'll be content when everything's settled, but—it sort of kills the excitement to be able to look ahead and know things are going to go on along the same way from now on."

"Why, Ralph Goddard! You could have said the same thing when you were working for my father. We couldn't have guessed two years ago that we'd be in Nebraska now with you teaching at the University. The idea! You can't know *what's* going to happen. Anyway, you said teaching keeps you right in the middle of all the new things that are going on in engineering, that you keep on learning along with your students. How can you say that things are going to go along the same way . . .?"

"It's just that—oh, I don't know. I'll be glad for the new term to begin."

Frances chuckled. "You just don't know what to do with such a long vacation. Soon as . . ." She broke off as the cyclist arrived, puffing elaborately.

The boy looked at Ralph's red hair, as though it were a clue he'd been given. "Are you Ralph Goddard?"

Ralph stood up cautiously. "That's right."

The boy pulled a bright yellow envelope from a pouch behind his bicycle seat, and extended pad and pencil. "Sign here, please."

Frances stood, too, and crowded close to Ralph as he hastily scrawled his name. He took the envelope with misgivings; their families were so far away, back in Massachusetts.

"Nice spot you've picked here," the boy grumbled, turning the bike with grim resolution and pushing it back the way he'd come. Ralph nodded absently and picked at the envelope flap.

"Open it up, Ralph!"

"Give me a chance, Frances." He shook his arm free of her inquisitive grasp and pulled the telegram from its envelope. "It's from a school in New Mexico." He perused the contents while Frances kept pulling at his shoulder. "They've offered me a job in the Engineering —oh, *head of* the electrical engineering division!"

"Head of the division!" Frankie's eyes danced. "Send them an acceptance, Ralph!"

Ralph blinked thoughtfully. "I don't know. They want me for the coming term. I can't leave the University on such short notice."

"Oh, Ralph, please! I'm so tired of this flat old land and all this *corn*. Where is it? State College? Is that the name of the town, or the school?"

Ralph continued to scan the telegram, ruddy face wrinkled with indecision, blue-green eyes blinking rapidly. "You might not like New Mexico any better," he said. "They're having all that Mexican trouble down there. Besides, I'm supposed to teach at Nebraska this fall, and —well, I guess it wouldn't hurt to talk to the University. *Head* of the division. If you want, let's go home and maybe I can see the Dean this afternoon."

* * * * *

Frances was waiting on the front step when Ralph returned from the University, and she ran to meet him soon as he came into sight.

"It's all set," he said, blinking his eyes at the marvel of it. "Dean says I can't afford to pass up the chance—head of the division. He

said for me to try it for a year, and if we don't like it, I can come back to Nebraska and they'll have a place for me."

Frances slid her eyes up at him merrily. "You see, Ralph, things aren't going along the same way, after all. When shall we leave?"

"School starts next month, and we'll have a lot to attend to when we get out there, so—the sooner, the better?"

Frances squeezed his arm. "The sooner, the better!"

* * * * *

Before the week was out they had settled their affairs, packed their belongings, and were waiting in Lincoln's Rock Island Station for the train that would take them on the first leg of their journey to New Mexico.

CHAPTER IV

New Mexico

THE YOUNG Massachusetts couple felt as though they had reached another world. They entered the state of New Mexico through Raton Pass, and needed no diversion during the long, hot trip but the dust-coated windows of the train, giving onto the vast, grand scenery of the Southwest.

"I can't imagine how people live like this," Ralph said. For miles at a time they didn't see a house, a road, or a telephone wire, though herds of sheep or cattle, or a puny-looking crop of feed or cotton gave evidence the land was sporadically inhabited.

At Albuquerque they debarked and boarded a southbound train, under the stoic gaze of blanketed Indians. They passed through several sleepy little towns where chickens, goats, horses, and brown-skinned people alike meandered laconically through the sun-baked streets between flat-roofed mud buildings. Naturally, Ralph surmised, the townships would spring up along the railway route; it seemed to be the chief link among the scattered inhabitants of the state. At the outskirts of the towns there were fairly well-established roads for a few miles, but they soon dwindled to indistinct, rutted trails that would tempt nothing but a mule.

The Rio Grande paralleled their southward route. It made a green path, with its company of salt cedar and hardy grasses which warred for survival against the August sun. On each side of the river valley stood bald, blue mountains, chiseled by wind and time into fantasy sculptures. The sky was flawlessly clear and brilliant. There was an

exciting feel to the country, a quality of the unknown, the unspoiled, a hint of not-long-past danger in the occasional adobe forts which flanked the railway.

The conductor took an ambivalent interest in the young Yankees, kindly volunteering information on the one hand, and alternately inflicting the particular brand of teasing reserved for Easterners.

"That's old Fort Seldon," he told them, pointing to a large, disused adobe complex nestled in rugged foothills. "You could fill your pockets with Apache arrowheads if you scrambled around out there for five minutes. 'Course, you'd have to keep an eye out for rattlers."

Ralph and Frances exchanged wide-eyed glances, then grinned at the conductor as they recognized "the tenderfoot treatment."

They passed through Dona Ana and the conductor reappeared, rolling from side to side with the motion of the speeding train, to alert them they were near their destination. He leaned across Ralph and chucked Kenneth's chin. "Nearly there, little feller. We'll be in Las Cruces in seven minutes; keep your eyes open and look off to the left there. Just before we get into the town proper you'll see the tops of three crosses, up on a hill. That's what 'Las Cruces' means, you know, 'the crosses,' for the gravesite of a party of Franciscan missionaries killed in an Indian massacre."

When they registered interest rather than distress, he tried a different tack: "This whole valley here, this is the Mesilla Valley. It got its name from an old Indian scout who rode up over the San Andres mountains, and looked down on the valley and said: 'me see a valley'." He threw back his head and laughed as he walked on through the car with his sailor-like gait.

"I didn't get that, did you?" Ralph asked. " 'Me see a valley—'."

Frances frowned, shook her head, then her brow cleared. "Oh! It's like 'llama'—the Spanish pronounce a double 'l' like 'y'—it *is* 'me see a'. Look, Ralph, I see the crosses."

Frances took a clean handkerchief from her purse and wiped Kenneth's face, then her own, grimacing at the dust which came away. While they paused in the Las Cruces station, Ralph took down their hand baggage from the overhead railing, and they looked eagerly ahead to their final stop, Mesilla Park, a scant five miles farther.

When they reached the quiet little village the conductor hurried into their car to see them especially. Ralph winked at Frances and raised his hand to his forehead in imitation of a searching Indian scout, focused his gaze on a cottage yard full of poplar trees and scraggling roses and said: "Me see a park."

The conductor laughed heartily and clapped Ralph on the back. "Attaboy, young feller. You folks're goin' to like it here, and you'll fit in fine. Just fine!"

* * * * *

Mesilla Park, very like their Lincoln neighborhood, was close to the campus and largely peopled with college faculty and personnel. The Goddards rented a pleasant house ("the old Elser place") and their new neighbors crowded around with welcome, the men helping carry their belongings inside, the women coming later with offerings of food for their first supper—salads, beans with ham, chicken, tortillas, and sandwiches. A peculiar menu, but emulsified with a merry, picnic-like spirit.

Next day the women helped Frances arrange her cupboards, and took her order for groceries and household sundries to the Las Cruces Mercantile, while the men gave Ralph instruction in local geography, and helped him select a horse, buckboard, and saddlery.

The opening of the school term crowded close, and soon as he had settled his family, Ralph saddled the horse, which he called "Dukie", and rode east for his first look at the college.

New Mexico College of Agricultural and Mechanic Arts obviously emphasized agriculture. Alfalfa grew in the open quadrangle between the campus buildings and across the road around the agricultural buildings. Plows, dairy herds, and horses were a comfortable part of the scene.

Dr. George E. Ladd, the college president, chuckled at Ralph's humorous expression. "Wait until you see the students in their overalls and feed sack dresses. Some of them will go barefoot until it gets cold."

They sat in the second floor office in the Engineering Building* which had been assigned to Ralph, and reviewed the 1914-1915 cur-

*The building now known as "Goddard Hall"

riculum outlines. After a minute, Ladd leaned back in his chair and explained apologetically: "Ralph, as you know, this is one of the land grant colleges, and the bulk of our work here is concerned with practical education—developing our students as more effective farmers. This is no 'gentlemen's school.' The electrical division is the newest in the engineering school, just seven years old, which is both good and bad as far as you'll be concerned. It's new enough that you can direct the shape it will take in the future, but you'll have to put up a good fight for the equipment you'll need and regents' approval for any curriculum changes that aren't strictly utilitarian.

"Let's take a stroll up to the tower; you'll get a good view of the campus—and most of the valley, in fact."

He led the way up a flight of concrete stairs to an arch-windowed, dome-roofed tower, where they could see for miles through the crystal-pure desert air.

"That's Hadley Hall, we'll go there next and meet with its namesake, Hiram Hadley. He founded the college back in 1888, in a single building in Las Cruces, and he called it Las Cruces College. The next year the state Legislative Assembly established the school as a land grant college, in accordance with the Morill Act, and the name was changed at that time, although the college wasn't moved from Las Cruces to its present location until 1890.

"We have three schools of instruction: general science, agriculture, and engineering. Agriculture is our long suit; you'll hear the college referred to as 'the Aggie school', or 'the cow college'."

Alfalfa-planted quadrangle in front of the Engineering Building.

The Goddard home in Mesilla Park, built in 1916.

Ladd pointed through the south window. "That little village is Tortugas, mostly Mexican Indians over there. A penitente sect, who practice self-flaggelation as religious atonement. Maverick group, most of the Penitentes are in the northern part of the state." He moved clockwise to the next window. "There's Mesilla Park, of course, to the west. That's Old Mesilla farther on, another Mexican community. That's quite an interesting little town, with a colorful history. You can still see stagecoach and pony express waystations in the village, and Billy the Kid was jailed there several times."

Moving again, he pointed north. "Of course, that's Las Cruces, and Doña Ana 'way in the distance. And, saving the best for last, these are our Organ Mountains on the east. Beautiful, aren't they? Wait until sunset if you want a splendid sight."

"Can you see Mexico from here?" Ralph asked.

"No," Ladd said, returning to the south window. "You can see the Rio Grande, of course, but it doesn't become part of the international boundary for about thirty more miles. There's a point of entry at El Paso, from Juarez, but we can't see that far because of the mountains."

"I'm wondering if you see any action from the Mexican revolutionaries?"

President Ladd was silent for a moment. "Well—you more or less learn to live with it, just like this business in Europe; we're not involved yet, but the threat is there. The Mexicans have been zig-zagging back and forth across the border ever since it started, more than three years ago. Now we had some local excitement back in the spring. There were a lot of contraband munitions—the old U. S. Springfield rifles, as well as ammunition and clothing—passing over the border at El Paso, and the source was traced to Old Mesilla.

"The Secret Service got interested in this locality then, and they incidentally learned that General Pascual Orozco and General Felix Terrazas had established a rendezvous with a large party of former federal fillibusters about fourteen miles from here, in the Organ Mountains. So, the last part of February a squad of American soldiers from the Thirteenth United States Cavalry descended on Las Cruces, along with deputy marshals and a number of other personnel from the Justice Department, with the intention of rounding them up.

"They located the arms depot in a house just north of Old Mesilla, near the river, and some El Paso newsmen who were in on the search party were watching the house from their automobile when approximately twenty-five mounted men rode up, all carrying bundles. One of the riders saw the newsmen's auto and gave the alarm. The horsemen rode away, and the newsmen gave pursuit. But those devils had strewn the road with pieces of tin with nails driven through them, which punctured both front tires. That delayed the auto quite a while, of course, but soon as the newsmen changed the tires they gave chase again. And hadn't got much further when they ran into a wire which had been tightly stretched across the road. Luckily the windshield withstood the shock, or the men in the front seat would have been decapitated. As it was, it was enough to discourage them from further pursuit.

"The next morning investigations resumed in Las Cruces, and a garage man said he'd worked on a car carrying Orozco and five other Mexicans up from El Paso, on Thursday, the night before the stakeout. He also saw several heavily loaded trucks come up from El Paso on Friday. A number of our students here at State College also saw the trucks passing by here towards Las Cruces.

"Well, aside from our sheriff being a bit upset with the newsmen for trying to get in on the activities, the whole thing sort of dwindled away afterwards. You'll hear of a little horse-stealing in the rural areas now and again, or you'll hear about a group of adventurers passing through toward a rendezvous with the Mexicans, but I wouldn't say the townspeople are affected in any way."

"I'm glad to hear that. I'll confess I had two minds about bringing my family to this part of the country."

Ladd shook his head. "No, no. The action you'll see around here occurs on Saturday nights when some of our students slip over to Tortugas to sample spirits." He chuckled tolerantly. "Let's go and meet with Hiram Hadley, and then with Dean Barnes."

* * * * *

Ralph rode "Dukie" back to his newly-rented house. It was past six o'clock, but with few trees and no tall buildings to stop the sun, daylight lingered. The sun hung red and fiery just above the horizon,

striking an inky-shadowed glow from the sand. Only hours ago the sky had been empty, but now a dramatic display of clouds appeared for its part in the sunset spectacle. Great golden shafts fanned through silver-gray cumulus and tinged the sky and the eastern mountains every color in the spectrum.

Frances sat on the doorstoop waiting for him, fanning herself with her apron, and she stood up rather listlessly to greet him. "Did you ever believe it could be so *hot?*" she asked. "I don't know how anybody can work out-of-doors in this climate. I nearly perished inside."

They went into the large homey kitchen where the table was laid for supper and where a stewing chicken had raised the temperature to an intolerable degree. Ralph re-directed the air flow, closing windows, opening opposing doors, moving the fan, until a welcome draft stirred through the kitchen.

"What do you think of the college, Ralph?"

Ralph served his plate with potatoes before he answered: "I don't know. It has a certain charm, and . . ." he chuckled, ". . . . I met Hiram Hadley this afternoon, the founder of the college. He's a character! A Quaker, rather elegant in his bearing, with a trim white beard. He's not in good health, I take it. President Ladd told me Hadley rises at exactly thirteen minutes to six every day of the week and spends his waking hours putting all his surroundings in order. He was rather formal with me, like he wasn't at ease with as modern a fellow as an electrical engineer. But as he remarked, he opened the college just a year after the Apache wars ended, and I'm sure the curriculum in those early days was quite different.

"That's one of the attractive points about the school: it's in process of coming up to date. I feel I can be useful here. But what a job! After we met with Hadley, President Ladd introduced me to Dean Barnes, who is also new to the college this year. Then together we looked at the duller side of the coin. The electrical division is in a whale of a mess, administratively, and as for the facilities—they're not only primitive, they're in common use by all the engineering divisions *and* the agricultural shops. It's going to be good bit different from Nebraska."

CHAPTER V

Border Trouble & Oneupsmanship with a Horseless Carriage

". . . Goddard looked to the future, he understood the greatness of his calling, he never ceased to try to penetrate the mysteries of science and to interpret them in terms of human needs in order that the people of this community should find the world a better, happier, brighter place in which to live. His life and work will long be remembered by all who knew him as a true example of the engineer who unflinchingly sought and taught scientific truth in a spirit of service to the community . . ."

JOHN G. BARRY
President, El Paso Chapter
American Association of Engineers
in his address "Good Engineering"
at the dedication of Goddard Hall
March 17, 1934

RALPH GODDARD was one of six new faculty members at the beginning of the 1914-1915 term. A. E. Barnes, Dean of Engineering, was also new to the college. He and Ralph had much to commiserate over, as newcomers in the youngest department of the agricultural college, but they shared enthusiasm for the challenge of strengthening engineering's image as a separate discipline.

Ralph was appointed faculty advisor to six students, a task encompassing the functions of curriculum counselor, tutor, confidant, financier, and friend. "Involvement" was an expected part of the job, and by November, when a major social affair for faculty took place at the elegant Amador Hotel in Las Cruces, the six new personnel—

Ralph, Dean Barnes, A. G. Cooley, M. S. Bowen, C. W. Russell, and Lucy T. Boyd — felt quite a part of the college family.

The college included a two-year preparatory school; there were eleven buildings on campus and forty members on the teaching and administrative staff. An Agricultural Club already existed, and Dean Barnes organized an Engineers' Club at the beginning of the term, with Ralph as charter member and strong right hand. The "cow college," with its alfalfa fields and hitching posts, its overalled students and overworked faculty, began to outgrow its continuing nickname as Hiram Hadley's broad trunk of "education" spread into three definite limbs: agriculture, engineering, and general science.

In February of 1915 the Electrical Engineering department gained a new laboratory, much to Ralph's encouragement. The same month Ralph served as guest speaker to the Agricultural Club. The "guest" distinction emphasized their differences, while the *invitation* began an alliance between Ralph and the agricultural faction which would be mutually rewarding for the rest of his life.

In April, Ralph applied engineering to agriculture in his article, "Cost Data on Isolated Lighting Plants" (farms), which was published in the agricultural *Extension Press Service* newsletter.

Frankie Gascoigne Goddard, Ralph's brave-spirited young motorcycle companion, took on a new and becoming character as Mrs. Frances Goddard, popular and active matron in the community. Besides her satellite activities with the college faculty, she became a charter member of the Progress Club in 1914, and her lovely singing voice was a welcomed addition to the Community Church choir. As the weather cooled, she found her household chores more tolerable, and her thoughts often turned to two problems: what to name her second child, due in May, and what kinds of flowers could she plant this spring, with any hope of success in the desert climate?

The war in Europe built up; as a unit, the college was almost isolated from transoceanic concerns; however, the diversified faculty had roots in many areas of the country, and repeated German insults against American seacraft brought an element of disquietude to the community. More imminently, the Mexican Rebellion intruded on

peace of mind — a complex revolution, with today's hero becoming tomorrow's villain, factional confusion rampant even in Mexico; no wonder American sympathy was uncertain! American mercenaries joined whichever side seemed to be ahead, some Americans felt the United States should intervene and perhaps even acquire Mexico, American border bar-stool politicians enacted micro-cosmic battles to the death, border journalists beckoned tourists from distant states to "watch a real war" across the river—a dangerous entertainment, with stray Mexican bullets striking American soil and, inevitably a few American citizens.

Pascual Orozco, who had been recognized in Las Cruces with General Felix Terrazas the previous year at the time of the munitions depot stakeout, died ignominiously in December 1915, killed by Texas Rangers while he tried to cross the Rio Grande on a "borrowed" horse.

President Woodrow Wilson tried to resolve the problems confronting border Americans through correspondence with the Mexicans, and he sporadically sent troops to the border or to the Mexican seacoast; but there was a remote separation between Washington and the border. Washington was more concerned with the German threat. To the border victims, however, Mexican rampaging was a good bit more than trivial. Horses were especially valuable in the southwest, where inhabitants were widely separated from a doctor, a mercantile, or a neighbor, and where the dearth of good roads made a horse the best means to bridge a critical distance. Livestock was only slightly less valuable; agricultural methods were primitive, and the raising of a single cow, or sheep, or even a chicken represented many man-hours of attention. Beyond the material loss, it was a personal indignity to have one's belongings taken by stealth, to have one's estate trampled by alien troops, to have one's peace and safety disturbed, all because of a revolution which had no business on American property.

Wilson's border patrols were little more than a bluff. The border was too extensive — 1,933 miles in length — to station troops within sighting distance of each other, and between the troops the same problems of inter-communication obtained as held for residents of the area; widely separated towns and villages, and few traversable roads for the Army's motor-driven vehicles, which were gradually replacing the

Army mules. What was a sentinel to do should he observe trouble near his patrol area?

Wireless communications?

"Wireless" had tantalized Ralph Goddard over the years, from the ninth grade, when he gave his valedictory address on the subject at Sever Street School. He didn't recognize it as a strong attraction; it was just something new and interesting — but his boyhood work sealed his fate: he had a reputation as a man knowledgeable in radio matters. He was approached for help in setting up a military communications system between the border patrols, and proved himself capable of the task.

It made a short-term distraction from his college duties. As he put his strong hands and practical mind to work on a very real job, he gained as much in experience as he gave in know-how. He returned to the college refreshed, exhilarated by witnessing this important utilization of telegraphy, and the germ of an idea grew and took shape.

If radio communication could be quickly set up among temporary border patrols, wouldn't a similar system be a boon to New Mexico's isolated residents? Wouldn't regular contact with an information center — even a weather-reporting station — be of service to the ranchers, farmers, miners, and lumbermen who had no newspaper delivery, infrequent mail delivery, and no instrument but a practiced eye to predict what the weather would be within the next few hours?

The idea was nourished with reports of the work done by "the headliners"— Fessenden in Brant Rock, de Forest in Springfield, and, of course, Marconi. Someday, thought Goddard, someday there would be radio reports going out on a regular basis all over the state, perhaps even into neighboring states in the southwest. He just might have a hand in bringing it about.

Someday — a new goal, something that wasn't already settled, something to strive for . . .

Frances had modest success with a bright bed of annual flowers, though she held little hope for them during the spring winds, when fierce, drying, abrasive, sand-laden gusts attacked the house as though determined to blast through the walls.

On May 10, 1915, their first little New Mexico native, Raymond,

was born, as blond and fair as Kenneth was dark. They had survived the spring winds and the verging summer didn't seem quite as hot as they had remembered. The Goddards made their choice; the option to return to Nebraska at the end of their trial year was courteously refused.

Beyond the rigorous weather and the manifold problems at the college, the ordinary business of living brought certain challenges. Saturday was shopping day, and meant that the Goddards had to assemble in the buckboard, with old Dukie hitched in front, and make the considerable trip to Las Cruces to visit the mercantile.

Young Kenneth's earliest memories of Saturday shopping were pleasant ones; but after the arrival of Master Raymond, Kenneth had to earn his penny candy by sitting with the baby in the buckboard, while Ralph and Frances got to do all the looking and choosing.

The mercantile stood next door to a saloon, and with everybody's pockets full of Saturday pay, Las Cruces' Main Street buzzed with activity. One hot summer Saturday, Kenneth had been tending Raymond for what seemed hours. As if it wasn't enough to be merely bored, baby Raymond started to fret. Kenneth leaned over him impatiently, cooing and making funny faces, and chasing away the great black flies which were an inevitable accessory to horse-powered travel. Raymond was unimpressed and began to yell in earnest.

Suddenly the saloon door opened and emitted an unstable gentleman, who wandered as far as the front of the Goddard buckboard before a second saloon patron caught up with him and hit him on the head with a board. He sank to the ground just in front of old Dukie, who was securely tied, fortunately. The afternoon was saved. Baby Raymond was startled into silence, and young Kenneth had an eyewitness experience to relate, which assured him an audience all the way back to Mesilla Park.

* * * * *

In March of 1916 the Mexican Revolution's effect on Americans came to a head. President Wilson had given official recognition to Venustiano Carranza, who had declared himself *primer jefe* in Mexico after he, Emiliano Zapata, and Francisco "Pancho" Villa had

defeated General Victoriano Huerta. American recognition, at last, of a Mexican government was an arbitrary move on Wilson's part, but one which incensed Pancho Villa. It had been a long, hard battle for Villa, one of the earliest "heroes" to emerge in the Revolution. Carranza, a traitor to the aims he and Villa had cooperatively fought for, was now Villa's bitter enemy, and from Villa's point of view, American recognition of Carranza's government was a spiteful choice.

Further, a strict embargo was placed on all arms and supplies crossing into Mexico, and the affront was compounded when Carranza asked Wilson's permission to pursue Villa across the American border. His request harked back to an 1882 agreement which allowed Mexicans to pursue marauding Indians into American territory, and, allowing some sort of analogy, Wilson agreed. Villa became a fugitive deprived of his previous sanctuary in the American border badlands.

Villa's vengeance was swift and deadly. On March 9, 1916, he led a band of renegades into Columbus, New Mexico (a border town about 45 miles west of State College), set fire to the main part of town and killed sixteen residents. Several of Villa's men were killed before they escaped back into Mexico.

The New Mexico National Guard was mobilized that day and on March 16 Wilson ordered 6,000 troops, led by General John J. Pershing, on a punitive expedition into Mexico to disperse the Villistas. General Villa was never apprehended; indeed, he remained a vengeful shadow, making several subsequent, though minor, raids into Texas.

Ralph and Frances expected another child, and Ralph bought five acres of land on the north side of Mesilla Park, closer to the college than their rented home. Before he could build a house, however, Frances lost the baby. She was extremely unsettled over the tragedy, so Ralph took her and the two boys to California for a real vacation. While they were there, they met the T. B. White family, who continued as life-long friends. Mr. White was with the Department of Justice and served as warden at United States Penitentiaries at Leavenworth, Kansas and at La Tuna, Texas.

After they returned, Ralph started to work on the house—a solid

adobe brick home with an attic and a basement and plenty of room for his family. He bought his first car in 1916, a 1914 Model T Ford, which made his frequent trips between the "old Elser place" and the new homesite a little easier; the Model T also let him sleep a little later than old "Dukie" had; he could leave home at 7:30 or 7:45 and still get to class at 8:00.

Ralph spent the summer working as engineer with the Las Cruces Light and Ice Company, but reserved a couple of weeks for a family trip in the new car.

The Goddards drove to Elephant Butte Lake, the year-old reservoir eighty-five miles north of Mesilla Park, for their summer vacation. On the drive home, with tent poles clattering along the running board and rope-bound satchels flatting the finish of the car, Ralph shook his head disapprovingly. "This car beats the buckboard a mile for riding around close to home, but I'm going to make some changes before we take another long trip."

He set to work first with a pencil and a scrap of paper, then with

Goddard's camping trailer—ready to travel.

Goddard's camping trailer—ready for occupancy. Raymond and Kenneth Goddard in front of trailer.

Mrs. Frances Goddard and her handsome firstborn, Kenneth.

hammer, saw, and the college welding shop's torch, and built one of the first automobile trailers ever seen in the southwest. It looked like a box on wheels, trailing along behind the Model T, but the sides opened out and made two spring beds, which, topped with unattached mattresses, made for a luxurious night's sleep. Pipes and ridge poles fit into the ends to support a waterproofed tent. The inside was fitted with food lockers on one side and clothing lockers on the other, with a small aisle down the middle. At mealtime, the lockers served as benches, and a removable table fit between them. While a self-sustained privacy was *possible,* the novel trailer attracted a crowd of onlookers every time it was rigged up or folded away. When Kenneth and Raymond grew big enough to help their father, the tented trailer could be set up in ten minutes, or disassembled in the same time, including fastening a canvas cover over the folded trailer to keep the contents snug and dry in transit.

* * * * *

Ralph's parents divorced in 1916. Frederic Emmons Goddard realized his lifelong dream with the purchase of a small farm near Paxton, Massachusetts, and Kate Woodbury Goddard refused to leave the city with him. She broke up the old household on Abbott Street and took a flat on Austin Street in Worcester.

The sour quarreling and silent discord of his boyhood seemed long ago and far away to Ralph, but he counted himself blessed that Frances accorded so perfectly with his chosen circumstances — the faintly primitive way of life at the desert college.

School resumed, with well over one hundred students enrolled in the engineering division. Ralph and Dean Barnes made addresses to the New Mexico Educational Association, and both men were elected officers of the organization: Barnes as first vice-president, and Goddard as treasurer.

The electrical laboratory and departmental library were places to be proud of by the 1916-1917 term. Ralph was surprisingly happy in New Mexico. He particularly loved the mountains, the open space, the intense elements of sun and wind, and as for the college, it had come a long way during his tenure. The southwest as a whole seemed

to him ripe territory for the youngsters he would train. His article, "The Field for Electrical Engineers in the Southwest", appeared March, 1917, in a special "Engineers Edition" of the *Roundup*. In his closing paragraph, he summed up his assessment of his adopted state:

> There is little question of the excellence of opportunity for well trained electrical engineers in the Southwest. It has been called the "Land of Opportunity" and this is no less true for the electrical engineer than any others. While probably settled as early as any other portion of this broad country of ours, it has but lately been opened up; is still very young and full of promise for the future.

CHAPTER VI

War and Peace and Radio

NEW MEXICO COLLEGE OF AGRICULTURE and Mechanic Arts offered little to attract faculty; the salaries were poor, the facilities second-best, and the surroundings not everyone's cup of tea.

The students, however, unburdened with big-city sophistication, were honest and earnest, proud to be enrolled in the state's second-oldest institution of higher learning. Their needs, simple though they were, were sometimes wanting, but there was no cause for despair; instead, they did what they could: the sixty-foot belfry atop the Engineering Building was a good place to trap pigeons when the food allowance ran out; or washing windows for a prof could earn a share in the evening stewpot; or a hard Saturday session in a cotton field or smithy could help ends meet; or a student could go to his faculty advisor, frankly tell him "how things were," and ask for a loan. The professor, in turn, would explain "how things were" to the landlord and the mercantile. Thus, it wasn't only low salaries which led to unbalanced ledgers on faculty desks. The college was a communal family, the pace leisurely enough that people had time to look out for each other.

Then—schism. The United States declared war on Germany April 6, 1917. President Ladd left the college that month, and Dr. Austin D. Crile replaced him as college president. Many of the barefoot, fuzzy-chinned farmboys answered the call to arms. Engineering and agricultural enrollments dropped sharply, and the carefree innocent spirit at the college came to an end.

Ralph's family grew again. Earl Gascoigne Goddard was born, like his brothers on the tenth day of the month, in November, 1917. This third child, whose hair was as red as his father's, upheld a long-standing preponderance of male children in the Goddard lineage. Ralph himself had had a sister, Helen, his parents' first-born child, who lived only a month. Sadly enough, she was named for Ralph's aunt (Frederic's sister), who also died in early childhood, while her brothers lived.

Ralph sometimes gave wistful thought to the merry mix of Frances' childhood home, with her large family of brothers and sisters. But he enjoyed his sturdy sons. Kenneth was already old enough to take some interest in a man's world; on his fifth birthday, in July, Ralph had given him the model electric train he built while still a boy himself.

The war went on. And radio once again intruded in Ralph Goddard's life. The United States Signal Corps, through the Federal Board for Vocational Education, selected New Mexico College of Agricultural and Mechanic Arts as a site for training some of the 15,000 buzzer operators needed in Army communications. Ralph was relieved of his teaching duties and placed as civilian head of the training school.

Several barracks were erected to house the radio equipment, and troops were established in a "tent city," when the school opened December 3, 1917.

The college was also designated as a radio "listening post" for the Intelligence Department, and two squads of specially trained men were stationed out back of Hadley Hall. Goddard was listening into the squads' receiver one noon for the regular time and weather broadcast from NAA at Arlington, and instead of the expected code "buzzes", he heard a human voice!

Ralph's germinal idea of giving radio service to the state of New Mexico renewed itself. Voice transmission would really be something! However, he retained enthusiasm for the use of code broadcasts. His young radio students learned the buzzer code quickly and with continued practice their sending and receiving speeds became very proficient. The recruits were of diverse backgrounds, with no special training. Soon as the wartime ban on amateur radio operators was

lifted, he would test out his theory that radio was the key to putting New Mexico's isolated housewives, farmers, miners, and ranchers in touch with the rest of the world.

In addition to training operators, Ralph worked closely with the "listening post" staff on engineering and development problems. After three months of experimentation Ralph worked out a design for a heterodyne wavemeter, an instrument which produced a known radio frequency in a vacuum tube oscillatory circuit; the inductance of the wavemeter was placed in inductive relation with any other oscillating circuit, inducing oscillations which set up beat currents, which could be heard in the instrument's telephone. As the frequency of the meter oscillations were brought nearer to that of the unknown induced oscillations, the "beat" note lowered in pitch and disappeared when the two oscillations were of the same frequency or wavelength. Variations beyond this point caused the beat note to reappear.

This highly accurate meter could also be used as a beat receiver set or an undamped transmitter. The principle of using a single mechanism for transmission and reception over short distances became universally used in Army equipment for regiment and corps radio sets. Goddard described construction of the meter "to give to the amateur and experimenter a practical design of a new and necessary instrument, thus saving many the cost and labor of duplicating the experimental development work" in an article, "Heterodyne Wavemeter", published in *The Wireless Age* magazine, February, 1920.

* * * * *

The Armistice, falsely reported four days prematurely, gave cause for abandoned celebration, which was repeated with no less fervor when the German surrender was confirmed November 11, 1918. Parades, bonfires, tin horns and backfires, lusty singing and shouting, and snake dances in the streets affirmed that not only had the United States come through the war victorious, but with plenty of steam left in the national engine.

With the return to normality, New Mexico College of Agricultural and Mechanic Arts took on an altered character. Farm boys who were able to resume their interrupted education were older, war veterans

who had not only travelled beyond the state boundary but across the world to do the most hellish job a man can do. For those who had merely waited, and worried, and rationed, the end of war signalled a new beginning and a new life style. Women's narrow skirts rose six inches, exposing black or tan stockinged ankles to appreciative eyes and presaging the increased freedom women would enjoy during the next decade.

As the working forces returned, the post-war economy boomed, though all was not peace and light. Americans became more nationalistic, suspicious of other lands and people. Legislation reduced immigration. Race riots and strikes took place in Chicago, New York, and Boston, and the new Bolshevism sparked a Red Scare.

The Armistice also meant an end of the wartime ban on amateur radio activities. Goddard polished up his idea to broadcast from the college and took it to Mr. A. C. Cooley, Director of the Extension Service at the college. The plan earned a conference and a hefty stack of correspondence, but was turned down as impractical. Goddard settled, temporarily, for a passive radio role. He constructed a receiving set in the basement of his home in Mesilla Park, and his tall aerial towers became local landmarks. He gradually grew comfortable with his war-enhanced reputation as a radio man, and gave an address on "Modern Wireless Telegraphy and Telephony" at the convention of the Southwestern Society of Engineers in El Paso, Texas on May 30, 1919.

The Goddards' fourth son, Roy Franklin, was born June 27, 1919 —another brunette.

Fall of 1919 brought an influx of new students as masculine enrollment recovered from the wartime decline. The Engineering Department was a busy place, and a more sophisticated place, as many of the returned veterans had had experience with the newest electrical technology.

Goddard saw a chance to pursue his broadcasting goal from another direction. He invited a group of interested students to his home on October 11, 1919, to listen to his home radio receiver. Afterwards the group congregated in the parlor, enjoying the gelatin salad and punch

Frances had laid ready. This "stag party," rendered even more convivial when Ralph passed around a box of cigars, fell in with Goddard's plans and organized the campus Radio Club. Its objective: "The advancement of its members in technical, general and practical information concerning radio telegraphy."

Charter officers were elected that evening: Louis Edelman, president; Mortimer Beatty, vice-president; Clarence Fite, secretary- treasurer; and Ralph Goddard, faculty advisor.

The Club laid claim to a receiving set salvaged from the Army training school equipment and put it into use until they could build their own set. A 500-watt Marconi standard Navy spark transmitter was added later, so that they could send as well as receive.

A wooden building formerly used in the radio training program became "the radio shack", and was moved to the rear of the Engineering Building in order to use that building's sixty-foot tower as an aerial support. The shack served dual purpose as a clubhouse and as living quarters for Earl Kiernan, who was chief operator and engineer.

Two masts went up: a sixty-foot pipe mast thrusting from the tower to 120 feet above the ground, and a second sixty-foot mast set in concrete in the ground near the Radio Shack. The masts were linked with a four-wire inclined flat-top aerial 100 feet long. Both masts were made of twenty-foot pipe sections, of graduating diameters: from two inches in the lower sections to one and one-quarter inches in the top sections, with the pipes screwed together by couplings.

The aerial wires were separated with two-by-two inch pine spreaders with rope bridles and ten-inch "electrose" insulators set above the lead-in.

While Goddard stressed "practice, practice, practice" — the basis of his success with the Army buzzer students — an immediate conflict arose between his roles as Club advisor and educator. His usual greeting to the students assembled at the Radio Shack was: "Have you done your lessons?" which frequently caused dispersal. However, when he was answered with virtuous nods, his approving back pats and gentle advice to the busily transcribing operator made it plain his

challenge was only in the student's interest, and not a subterfuge to get at the equipment himself.

New Mexico's vigorous windstorms wasted little time in initiating opposition to the delicate tall aerials. In November, after only a month in service, wind destroyed the taller mast, dropping it in three pieces through the roof of the Engineering Building.

November is a bad time for anybody to have a setback, with the advent of busy holidays; it was an especially bad time for Ralph to suffer the embarrassment of holes in his office building's roof. His infant Roy was a sickly baby and Frances, with renewed grief for her lost child, gave him an obsessive amount of attention. Kenneth, Raymond and Earl, however, were old enough to know what to expect at Christmas, and with Frances dedicated to the infant, Santa Claus preparations fell to Ralph.

Radio Club members grumpily spent their time with schoolbooks, and it was not until Christmas vacation that Ralph and some of his students ("leave-overs", as the campus-confined were known) were able to put the station back in operation. A new "inverted L" antenna, 133 feet high, replaced the old flat-top aerial, and the Radio Club opened the New Year of 1920 by sending messages to amateur operators in Deming and in Roswell.

CHAPTER VII

A "Real Prof" Becomes Dean

". . . The decade of the Goddard administration was characterized as one of consolidation and formalization of the engineering program. The objective was to strengthen the curricula; secure a fully competent faculty and provide the best equipment with the available monies. World War I had ended Nov. 11, 1918, and in its wake came the challenge to meet new demands in science, technology and general education. The wig-wag system of communication on the battlefield, so extensively used in the Indian wars, and the heliograph, had been displaced by the radio. Ralph Willis Goddard had the vision to see the broader application of this new medium of communication as a means of civilian enlightment . . ."

General Hugh M. Milton
in his History of the
Engineering School at
New Mexico State University

THE POST-WAR BOOM continued through the first half of the year 1920, as did the "Red Scare" — on New Year's Day, several thousand alleged Communists were arrested and denied civil liberties through the action of Attorney General Palmer. Prohibition went into effect in January, and the climate was one of nationalism and serious-mindedness (with the exception that ladies' skirts rose three more inches, to a bold nine inches off the ground).

Across the nation urban population advanced slightly over ruralization, with New York, Chicago and Philadelphia boasting more than a million residents; New Mexico's growth began to exceed that of the nation as a whole, although 82% of her population were still rural dwellers.

KOB: Goddard's Magic Mast

Ralph Goddard, still a young man at thirty-three, had his eyes fixed firmly on the future, and on its demands of modern education. The Radio Club and his home receiver served mainly as extra-curricular outlets, although a modest communication service was performed for the college's R.O.T.C. encampment, "Camp Pershing," in the spring: messages were sent to and from camp to campus using a relay system. Goddard's chief goals, however, were concerned with his department: he hoped to strengthen the curriculum and to update the laboratory equipment.

While it would take years for his efforts to bear fruit, and before his contributions to the future prestige of the Engineering School at the college were recognized, he had immediate respect from his students. He was a popular professor, described by one of his former students as "kind, fair, but straightforward and very determined."

In January, 1920, Goddard's initial lecture to one of his new classes was assessed in the college paper, *The Roundup*:

A REAL PROF!

Last week in a preliminary talk to one of his classes, Prof. Goddard placed the relation of the instructor to the student in a new light. He told the members of the class that a honest criticism of his work would always be accepted in the proper spirit and would not affect the standing of the student unless, help us, if the criticism merited reward. He informed the class that he was unaffected by "sugar," that he would call his class on their mistakes and felt that they had the right to call him on his.

This attitude towards the men of the upper classes cannot help but be appreciated by them and many a college professor might find that he could obtain better results by adopting this attitude instead of conveying the impression to his own fancy, that if the students received any good from the course, good and well, and if he didn't, let him weep alone — "One of the class."

* * * * *

Goddard remained an avid listener to the wireless late into the nights, and on February 19th he managed to eavesdrop on the following, as noted in his code transcription files:

Was copying NFF sending Government military messages as usual just before 10.00 P.M. Feb. 19th. NFF quit a few minutes before 10.00. I then copied NPL for a time and about 10.30 was tuning around when I got the following. First is

a jumble from NPL, then call of NFF to WII. Text of these messages in Wireless Age for March 1920, page 10.

. . . wi wii nff mff wii wii mff mff wii rrrrr hr nr nyk 9 rst 50 godfrey jr. saach managing director marconis wireless telegraph company limited London may this first message which opens commercial wireless service between america and england mark an epoch in history from which the achievements of the future shall date communication is the leverage which shall lift the world to better understanding . . . sheet arch and thus lead to closer ties of friendship between all nations it is the mission of our respective companies to so strengthen and improve the wireless service that distance shall be made negligible and communication practically instantaneous — edward j nally president radio corporation of America hr nyk ff st h president of the chambr of commerce london — now that the war controls have cased nd the radio corporation of american as been honorably discharged from the service we foresee closer and quicker business association and we are confident that this new means of prompt communication and understanding will enable the f nyk secd sheet president business men of New York to work more closely with the business men of London not merely to the advantage of themselves . . . but for the greater progress and benefit of civilization alfred marling president new york chamber of commerce hr sheet 50 imperial commercial association 4 cullum street london ec upon the occasion of this of the opening of commercial wireless service weir the united states and at britain the meryhanth association of new york desires to extend to the imperial commercial association of London its cordial greetings and its good wishes for nyk second sheet commercial the continued growth and success of . . .

* * * * *

On June 1, 1920, Goddard's academic abilities were acknowledged by his appointment as Dean of the School of Engineering, when the former dean, A. E. Barnes, resigned. The college newspaper again expressed student opinion:

Prof. R. W. Goddard has been elected to the position of Dean of the School of Engineering to fill the vacancy caused by the resignation of Dean A. F. Barnes. He has been Prof. of electrical engineering here since 1914 and his promotion is appreciated by the students in the engineering department as he is considered one of the strongest men in his line in the state and is popular among those who come in contact with him . . .

Now he was obliged to spread his wings over the other engineering divisions, as well as electrical: mechanical engineering, civil and irrigation engineering, and a fourth division, chemical engineering, which was still in process of development.

Another administrative change in 1920 was the coming of Harry Llewellyn Kent, who replaced Dr. Crile as college president. The bald-

ing, gentle-eyed Dr. Kent and Goddard took an immediate liking to each other and were destined to be both close friends and allies in the continuing progress of the college.

* * * * *

The campus Radio Club held licenses 5CX, 5FY and 5FZ, dating back to late 1919, for its amateur equipment. June 3, 1920 marked the first important date in the history of what was to become radio station KOB. This was issuance date of experimental radio license number 5XD, for a 50-watt continuous-wave transmitter Goddard and Earl Kiernan constructed early in 1920. This transmitter would later be modified for voice communication. Meanwhile, campus radio broadcasts to the public started with twice-daily time signals and weather reports. Time signals were beat off by seconds for the five minutes previous to the hour, omitting the 29th and 55-59th seconds each minute. Weather reports, given in telegraphic code, followed at 12:00 noon and at 10:00 p.m. Time signals were received by the

At left is a one-kilowatt spark transmitter used for amateur work. At right is KOB's first piece of equipment, a 60-watt continuous wave transmitter built by Earl Kiernan in 1920. (R. W. Stewart photo)

college from the Naval Radio Station in San Diego, and weather reports were furnished by telegraph from the United States Weather Bureau at Denver, Colorado.

The Radio Club's work took on prestige and stricter time scheduling when the college affiliated with the American Radio Relay League in September. Club members put in extra station time to receive and transmit messages across the country. The radio house was slightly cramped with this extra activity, so in October the building was expanded.

The Radio Shack, KOB's original home. (R. W. Stewart photo)

An innovative use for the radio equipment was reported in the *Las Cruces Citizen,* November 13, 1920:

The College authorities last week discovered a new and practical use for the Radio Club wireless station. The Extension Department is installing a new bell system throughout its offices and when it was found that the regular mailed order for materials did not get them, it was thought that something out of the ordinary was required to bring immediate attention to the order. This was done through the College Radio Station and that of Mr. LeRoy Hill in El Paso and the local

telephone lines . . . Telegrams were sent to Mr. W. S. Bledsoe, the El Paso salesman for the South West General Electric Company and suitable materials selected from their stocks for the work. The order was then placed and shipment immediately made. The college station is now in regular communication with El Paso and many messages are being sent and received over this new line of communication.

The post-war boom ended and a decline started in mid-1920; and it was a presidential election year. Contenders were Ohio's Governor James M. Cox, with Franklin Delano Roosevelt of New York as his vice-presidential candidate, and the Republican choice: Ohio Senator Warren G. Harding and his running mate, Massachusett's Governor Calvin Coolidge. The ladies' vote amendment had been passed, and for the first time their impact would be felt in a national election. The Westinghouse station KDKA in Pittsburgh, licensed October 17, 1920, planned to make its inaugural broadcast November 2, to report election returns.

Goddard transcribing from his home radio laboratory.

Interior of the Radio Shack, 1921.

NMA&MA's Radio Club participated in a small way that historic night: they held an open meeting, inviting students and townspeople to an assembly room at college. Ralph Goddard received KDKA's election reports over his home receiver and telegraphed them to the college station. In turn, the station operator telephoned the returns into the assembly room.

Final returns showed Harding-Coolidge as landslide victors, with a popular vote of 16,152,000 (404 electoral) against the Cox-Roosevelt popular vote of 9,147,000 (127 electoral).

CHAPTER VIII

Flood in the Desert

". . . part of my definition of a good engineer is that he is a good citizen. This is doubtless a pragmatic point of view, but a useful one. Technical proficiency is of no avail unless it be fitted into the general scheme of common life . . .

". . . An engineer should be the most useful of citizens. He should not keep his approach to technical problems for technical problems alone, but apply it to the community and civic life of his environment . . . No man was more aware of these obligations than the one to whom we are dedicating this building, and his is an example to follow . . ."

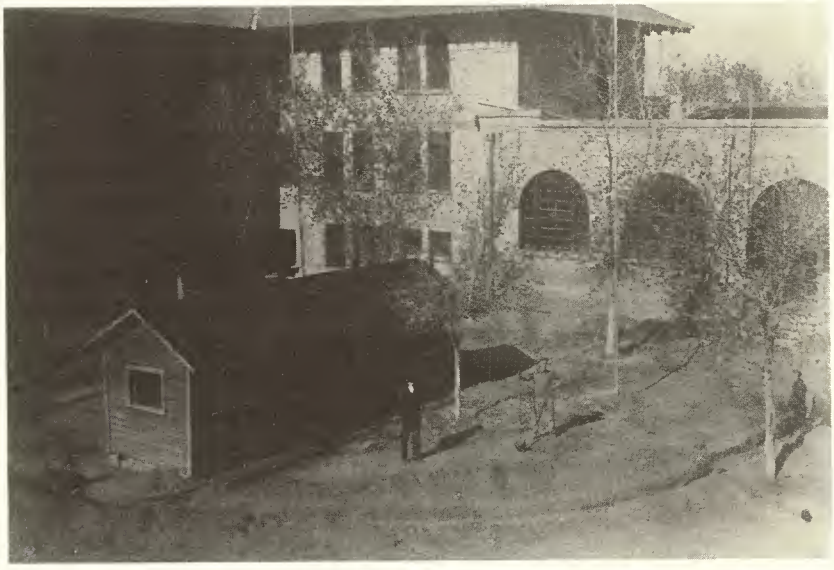
JOHN G. BARRY
President, El Paso Chapter
American Association of Engineers
in his address, "Good Engineering"
at the dedication of Goddard Hall
March 17, 1934

THE DECLINE following the post-war boom in 1920 became a definite depression by 1921; while the southwest entered the fourth year of an unusual "wet cycle" (New Mexico's rainfall was nearly double its annual average), farmers were hit hard by export difficulties, which caused a decrease in income and the loss of many farms. On the brighter side, living standards were on the rise, despite the depression; enamelled sinks and tubs were introduced; Frederick Grant Banting isolated the insulin hormone; Rudolph Valentino starred in *"The Four Horsemen";* and Westinghouse released the first factory-built radio listening sets, in time for the initial broadcast of the World Series. Americans eagerly absorbed Russian news, with its secrecy, censorship and violence, and people were warming to the field of psychology — intelligence tests and post-war shell shock treatment were popular con-

versational topics, as were Sigmund Freud's theories, which seemed to laymen to justify the new morals which were to characterize the decade. By the end of the year, knee-length skirts became standard fashion, and the Jazz Age was underway.

1921 was an active year for the campus Radio Club; they turned the Radio Shack around and placed it on a concrete foundation, and added a new 8′ by 16′ operating room to house the newly erected one-kilowatt transmitting set and regenerative set and two-step amplifiers for use with the old set.

Mighty labors went into construction of an aerial grounding — a "round round ground" system. Tireless Radio Club members dug a five-foot deep circular trench sixty feet in diameter around the Radio Shack, and buried 48-inch hog wire fencing. The transmitter site stood directly in the center of the circle, with stranded copper wires buried in radials spaced at ten-foot intervals at the circle of fencing. Depths of campus humor (not much appreciated by the diggers) were



The handsomely dressed Dean and three diggers: installing the "round round ground" system around the Radio Shack.

reached by non-participating engineering students: "How do you expect the ground wave to get anywhere since it will be dizzy going around that circle?"

A portable set, licensed 5CX, was used for local work and practice; another portable spark transmitter was constructed, and other acquisitions included a single-tube radiophone and a six-tube continuous-wave transmitter.

The Radio Club continued its American Radio Relay League work in the state of New Mexico and into El Paso, Texas, and occasionally made good long distance records throughout the western part of the country.

On February 21 Dean and Mrs. Goddard entertained the Radio Club in their home, where the members listened to Catalina Island, California over Ralph's new wireless telephone, and to a message from President Warren G. Harding. Active club members at the time included Robert Buell, Willard Day, Tom Fort, Andrew Hendrix, Roger Keeler, Earl Kiernan, John Silva, Alfred Strode, and M. H. ("Monk") White. Strode replaced Keeler as club president the following month.

* * * * *

Goddard's professional association affiliations grew and grew, and with them his engagements as a speaker. His oratorical ability was a matter for argument: it has been said, "Goddard was not a public speaker, but then, he never tried to be one." Students, however, accustomed to the New Mexico dialect — with all consonants except the final being definitely enunciated — found Goddard's near-British accents an entrancing change-of-pace. Goddard personally considered speaking ability a valuable asset, and regularly required his students to deliver oral reports in his classes. Silver-tongued or not, Goddard had plenty to offer in the way of content, and he labored in preparation of his talks, often typing out the full text, or writing copious notes on small slips of scratch paper. He had personal charm and humor, a keen interest in his audience, and his speaking calendar was always full.

He was chairman of the research committee of the New Mexico

Electrical Association in 1921, and delivered an address on "Electricity" at their annual convention in Albuquerque February 14-17.

In May he was elected first vice-president of the Southwestern District, American Association of Engineers. At their 1921 convention in Phoenix, he spoke on "The Engineer, Past, Present and Future." His description of the modern role of the engineer closely paralleled his own life style:

"The engineer of the past was in general subservient to others," he observed. "Promoters and bankers with keen wit or capital used their training and ability as a stepping stone to their own greater triumphs. And he was too often willing that this should be so, being totally engrossed in technical details. With keen competition extreme specialization was practiced. This destroyed to a great extent any feeling of common interest among engineers of different branches. As a result the engineer who recognized the value of cooperation and organization affiliated with others in his own field and valued the connection principally for the technical information to be obtained. Such organizations were necessarily widely scattered. There was little opportunity for local activity or publicity except in the largest cities. Consequently true engineering was seldom brought to the attention of the public so the engineer and his work were little understood or appreciated. The natural results were low returns for the services rendered and unjustifiable subordination and disregard by all. Thus the engineer found himself in a sort of rut . . .

"With the advent of the World War, conditions changed. The resources of the leading nations of the world were taxed to the utmost to produce food, the materials of war and transportation. Many of the problems were of an engineering nature. The standardization of equipment and material . . . the economical handling and transportation of the enormous quantities of raw materials and finished products; the design and construction of erecting plants and building of an enormous merchant marine are only a few of these. The rapidity and thoroughness of the American engineer in this emergency was the surprise of the whole world.

". . . The American Engineer found his profession raised from its

obscure position to one of prominence, we might even say placed upon a pedestal. But the engineer as before was too busy with his problems to notice what was being said or not said about him and his work. He was a worker, not a talker. So the foundation of that pedestal, the many achievements accomplished, grew steadily broader and firmer. The engineer had gained the confidence and respect of the public.

". . . What of the future and the part the engineer will play in it? The engineer stands high in the esteem of the public. It has trusted him with important commissions and he has made good. They will continue to do so and the engineer must not disappoint them. He must understand and shoulder the responsibilities appertaining to the trust. He must broaden out socially and display his talents to his neighbors; assert his rights as a citizen; enter politics to zealously guard the public welfare; ever maintain the honor of the Profession; prevent unnecessary and harmful dissension because of honest difference of opinion; and above all learn the meaning and value of those two words, the motto of the A.A.E.: "Advance — Co-operate." 'Service' should be the engineer's password."

At the same convention he entertained at the ladies' program with "mysteries of electricity" — a magic show which had been eagerly received at NMA&MA student assemblies in the past — with silks changing colors under white and violet lights, a high-tension Tesla coil discharged through colored Geissler tubes which he held in his hand; the stroboscopic effect; a "trained" motor which oscillated when a switch was thrown; wireless lights (a small bulb mounted on a coil which lighted only when passed over a certain place on the demonstration table, and another bulb mounted on a vertical glass plate which answered questions from the audience with 1, 2, or 3 flashes); demonstrations of wireless telegraphy and telephony, with Victrola music transmitted over the wireless telephone; and an amazing "electric doughnut cooker," a box-like apparatus with a hole in the top, through which Goddard dropped chunks of batter. The confections momentarily flew out of the box several feet into the air, nicely browned. Tasters discovered why they were called "doughnuts" when

they bit into them — each had an iron nut imbedded in them, which heated up inside the magnetic "cooker."

* * * * *

The college Radio Club had regular communication with Montana, Kentucky, North Dakota, California, and Kansas, and offered to put its practice to public use by sending messages for local people without charge.

The Club made plans to repeat communication services for the R.O.T.C. spring encampment. While the previous year's service had been rather primitive, requiring a relay operator as well as camp and campus operators, the superior speed of telegraphy over courier was obvious. Three weeks before the April encampment, Major J. C. Waterman of the college R.O.T.C. staff detailed his cadets who were members of the Radio Club to special duty, and they put in their drill time on code practice. The encampment, "Camp Harding," would be located at Mesilla Dam, six miles west of Mesilla Park, and as the new portable sending set had a range of twenty miles, the need for a relay station was eliminated.

One of the portable receivers and a telegraph transmitter were provided at the campsite, and then that old devil Wind struck, levelling the campus aerial. However, a temporary aerial was rigged, and though the wind continued to cause static, the messages went through —not only official messages, but press dispatches as well, which were posted on the camp bulletin board to keep the boys in touch with the outside world, and, oh, joy! more than 160 private and tender greetings to and from campus co-eds, sent at a charge of 1¢ a word.

The R.O.T.C. department highly commended these various services.

In May, the Radio Club was asked to cooperate with the War Department in training amateur operators — a preparedness measure prompted by the 1917 emergency shortage of radio operators. The campus station was considered one of the best "receiving stations" in the southwest, having picked up messages from ships in the Pacific and from New Brunswick, New Jersey.

Sending capabilities, however, were quite modest. The experimental transmitter had a fifty-mile range up and down the Mesilla Valley, but

increasing radio traffic threatened to curtail even that achievement. Goddard's dream of regularly broadcasting through the entire state of New Mexico — an area of 121,666 square miles, corrugated with mountains — seemed an extravagant hope.

Then an opportunity came to perform a vital service, even with the station's limited range. About six o'clock on the evening of August 17 a sudden and devastating cloudburst, typical of desert summers, poured over the basin thirty-five miles north of Las Cruces deluging the neighboring towns of Hatch and Santa Teresa, New Mexico. Five buildings in Santa Teresa were destroyed and, two miles to the east, in Hatch, two stores, a church, and the school were all that survived the wall of water rushing down the mountain arroyo into the valley.

Damage to buildings and crops in the area was estimated at half a million dollars, and the threat didn't stop at Hatch. Flood waters raised the Rio Grande to its highest level since the 1915 completion of Elephant Butte Dam, imperiling towns and farms along the Rio Grande, including Las Cruces and El Paso.

Immediate efforts to divert the river water into drainage canals brought defensive farmers in a self-appointed vigilance committee to the banks, armed with shotguns, to hold off an action which would result in ruination of their own crops.

Meanwhile, emergency aid flocked to the stricken towns: the American Red Cross, the Salvation Army, a relief committee from the Las Cruces Chamber of Commerce. Private autos and trucks made a slithery trip northward with provisions; Fort Bliss, near El Paso, sent Army tents, blankets and cots; and the El Paso and Southwestern railroad and Southern Pacific furnished five hundred wagon loads of cinders from their railway yards for the erection of a dike, a feat undertaken by a volunteer shovel brigade.

Dean Goddard, assisted by Earl Kiernan, took the campus portable radio equipment to the flooded area and communicated latest developments and needs to an operator at Goddard's home station, 5ZJ, and the operator relayed information by telephone to the Las Cruces Chamber of Commerce, thus enabling some coordination of the varied relief and rescue efforts.

To Goddard, who had charted hundreds of miles on the Atlantic Ocean, who had lost his beloved *Imp* at the mercy of the sea, no waters had ever looked more awesome than this flooded desert basin. Pajama-clad residents had fled to high ground; floating fence posts, shingles, bits of lumber, and F. N. Cabanniss, a lone sentinel sitting hopelessly next to a pile of salvaged stock on the roof of his drugstore, were sole reminders this lake had been a town.

As relief personnel, reclamation service officials, cinders and shovels, and tents and provisions rolled into the surrounding area, Ralph reflected that the mariner's friend, radio, also served in aid of his desert valley neighbors.

* * * * *

The Radio Club's activities began to expand beyond its weekly instruction and practice sessions. Dean and Mrs. Goddard entertained the members again in their home, and the Club planned a campus dance which proved to be one of the best social events of the year. The Radio Club and Engineers' Club joined forces to make an inspection trip through the El Paso offices of the Mountain States Telephone & Telegraph Company, Western Union, and other places of interest in the Texas city.

Earl Kiernan usually sent the twice-daily time signals and weather reports; Robert W. Stewart, a "prep" student newly arrived at the college in the fall of 1921, occasionally filled in for Earl. The time signals originally were hand-keyed, while the operator followed a chronometer second hand.

"That's sort of pokey, isn't it?" Goddard said, as he watched Kiernan beat off the signals. "Let's see if we can't improve the situation."

Dean Goddard built a "time machine," which was driven by pulses from the clock on the second-floor hall of the Engineering Building. The proper sequence of pauses was obtained by contacts on a rotating wheel, driven by ratchet action by the pulses from the clock. This left the operator free to watch meters on the set and to make any necessary adjustments.

The old wind-damaged aerial was replaced in the fall with a new "fan type" aerial, similar to the design used by Marconi at his Poldhu, Cornwall station. The old mast sections had been screwed together by couplings; the new mast fit together more securely with its six pipe sections telescoped about eighteen inches at each joint. The top section was one-and-one-half inches in diameter, and lower sections graduated to two inches, two-and-one-half inches, and three inches in diameter for the three bottom sections. The mast again sprouted from the Engineering Building tower, but rather than sitting atop, the mast snuggled solidly down through two reinforced concrete floors as well as the tower roof.

The mast was considerably more rigid than the previous, coupled-pipe mast, but Goddard decided to use guy wires from each sectional joint to the four corners of the tower as extra support of the 140-foot mast against fierce New Mexico winds. However, he calculated the weight of ordinary wire used so extensively would exceed the column strength of the mast, so piano wire was used for the guy supports. The wires were insulated with two-inch porcelain eggs, and the mast was grounded by wires connected to water pipes.

A second mast, 139 feet tall, was erected on the end of the machine shop (175 feet east of the tower mast). It was built of six 22-foot sections of pipe telescoped twenty-four inches at the joints. Sections graduated from one-and-one-quarter inches in the top section, to one-and-one-half inches, two inches, two-and-one-half inches, three inches, and four inches in diameter. Support was again given by piano-wire guys at each section joint, and grounding went to water pipes.

The fan-type aerial stretched between the two masts and a lead-in bushing in the north end of the transmitter house. The aerial, supported from a top wire 150 feet long, was separated from the masts by strings of porcelain eggs and rope. Then eleven wires, separated fifteen feet apart at the top wire and two feet apart at a second cross wire fifty feet above ground, were strung and bunched together into a single lead-in cable at the bottom.

A third mast, sixty feet tall, went up beside the forge shop to support a single-wire aerial. The fan aerial was used for transmitting and

the small aerial for receiving, so that duplex operation could be performed, receiving and transmitting at the same time. Experimental low power music broadcasts were sent with some success.

The Radio Club completed its receiving set and installed a powerful amplifier and loudspeaker, so that music and speech received at the "Shack" was audible all around the Engineering Building.

CHAPTER IX

Long Day's Journey

"He was an enthusiastic teacher with a sense of humor in every lecture and an unforgettable smile. His ruddy face . . . radiated enthusiasm and interest in those who sat and listened to him. He was not a tall man physically, but his ideas and hopes started from heights as tall as the western mountains he loved. He was a gentle and deeply understanding person who loved his students though he could not spend much of his time with them . . ."

ROBERT W. STEWART
Former student of Ralph Goddard
(from correspondence with the author)

RECOVERY FROM THE DEPRESSION started in the spring of 1922 and personal concerns encompassed inflation, the high cost of living, the housing shortage, and auto riding — autos were coming of age, bringing into being gas stations, roadside restaurants, repair garages, tourist cabins and highway construction, and, for young couples, escape from paternal supervision. The attitude toward life was relaxed, with more opportunities for pleasure. Sundays gradually changed from "church day" to a day for attending movies and baseball games.

Radio's acceptance as a permanent part of America's future was exemplified by a legal decision in Little Rock, Arkansas, in April, 1922. A group of citizens asked Chancelor J. E. Martineau of Pupuski chancery court for a restraining order against their neighbors, a father-and-son team of wireless enthusiasts. The men, who generated "buzzing noises" with their wireless outfit between 9 p.m. and 7 a.m. reputedly interfered with neighborhood sleep. Martineau ruled that a wireless plant was not a nuisance, the buzzing noises were something persons

must become accustomed to, just as they had had to become accustomed to the noises of street cars, whistles, etc.

Five hundred new voice stations went on the air in 1922, all on the same wavelength. Among them was the New Mexico College of Agricultural and Mechanics Arts station, assigned the call letters KOB on April 5, 1922. From then on regularly scheduled programs went out from the one kilowatt transmitter.

Arrangements were made with the U. S. Bureau of Markets for market and stock reports to be broadcast over KOB. The Tri-State Phonograph Company in El Paso supplied the latest phonograph records, and the El Paso papers, the *Times* and *Herald-Post,* furnished press news. Market and weather reports won particular approbation of the college's Agricultural Extension Service, which agreed with Goddard's evaluation of radio as a viable tool in disseminating infor-

John Silva, a charter member of the Radio Club, operating from the ROTC campsite in the spring of 1922. Loudspeaker provided musical entertainment to the cadets as well as press dispatches and official communications. (R. W. Stewart photo)

mation to farmers. The Extension Service was to continue as Goddard's greatest supporter.

With its commercial license, KOB had arrived; however, experimental and remote control work went on, using the college's smaller transmitters and receivers. The Radio Club repeated its communication services for the 1922 R.O.T.C. encampment, with the experimental and mobile station 5FY installed in Goddard's two-wheel trailer. The service was refined by the addition of a number of radiophone sets, giving voice communication and music rather than telegraph code and making it possible to furnish entertainment to the cadets using the radiophones and loudspeaker.

The 1922 convention of the southwestern district of the American Association of Engineers was hosted by New Mexico College of Agriculture and Mechanic Arts in April. Goddard was elected president of the district and D. S. Robbins of NMA&MA was elected treasurer. Goddard talked on "Radio Communications" and presented a radio music dance following the business meeting. Music came from Denver over the radiophone.

Goddard made plans to attend the national A.A.E. convention in Salt Lake City, and routed his trip through Los Angeles, to take care of some business there. He left in June on the Golden State Limited railroad for Los Angeles, and with typically thrifty use of time and circumstance, he used the opportunity of long-distance travel to test the field strength of station KOB. He used an Aeriola receiving set, with an eighty-foot antenna swung two and a half feet above the Pullman car roof, and was able to "bring 'er in" for a distance of 125 miles!

While KOB's usual operating range was limited, Goddard literally took radio to every corner of the state. With his old hand at showmanship, he made several trips to New Mexico high schools, giving lectures and demonstrations. He took along various Radio Club members on the different trips, as a treat for the boys and as added muscle power to handle his voluminous equipment.

The programs were designated to entertain, and were given advance publicity with boldly-colored printed handbills—

Radio Lecture
and
Concert Tonight
by
DEAN R. W. GODDARD
of the A. and M. College
Foremost authority on RADIO in the Southwest. Given under auspices of the HIGH SCHOOL.
COURT HOUSE
8 P.M.
Admission—25c and 35c

and sometimes:

FREE
LECTURE
Dean Goddard
State College
on
"Wireless and Radio"
H. S. Auditorium

—but their purpose was to demonstrate radio's capabilities in the hope of attracting high school students to the college, particularly to the study of the "new engineering."

On one state-wide tour, his student companions were Earl F. Kiernan, the 1921-22 Radio Club president and chief operator-in-residence at the Radio Shack, and Robert W. Stewart, the enthusiastic youngster who hung around with the older radio buffs even though he was still in his last year of prep school.

The men loaded their equipment: a small radio transmitter and standard receiver, an "enunciator" (microphone), a loudspeaker, storage batteries, fabulous lengths of wire, an old Victor turntable and phonograph records (nearly eleven hundred pounds all told) into Dean Goddard's Model T Ford touring car.

They covered the eastern part of the state, giving lectures, concerts, and radio-music dances, transmitting from one end of the room and

receiving at the other, and amplifying the music to sufficient volume to override the sound of dancing feet. They used a low power vacuum tube transmitter with the "absorption loop" type of modulation. This meant the carrier wave was modulated by the voice or music. The first experiment on the continuous-wave transmitter was done as follows: a few turns of wire were wound on an oatmeal box and this coil was in series with the microphone and battery. The oatmeal-box coil was then placed down inside the main plate inductance of the transmitter. This had been wound on a cylindrical form and the oatmeal box fitted close inside. When voice or sound of any kind was picked up by the microphone, the magnetic field of the absorption loop modulated the high frequency field of the transmitter (the wavelength or frequency of the transmitter was the carrier wave) and upon receiving the carrier, music or any sound was heard in the receiver. (Later the rigid forms provided by the oatmeal box were omitted, and the well-insulated wire was wrapped around the plate inductance of the small transmitters.)

High school demonstrations were made at Roswell, Vaughn, Clayton, Artesia, Estancia, Alamogordo, Albuquerque, Magdalena, Socorro, and Ft. Stanton. Music was also furnished for banquets at the Taft Room of the Alvarado Hotel in Albuquerque and at the Albuquerque Country Club.

After making the last demonstration at Ft. Stanton just before noon, the three men repacked the Model T and headed for home. Dean Goddard decided to take a short cut down Devil's Canyon, which joined the main highway between Ruidoso and Mescalero.

It was an ominous choice.

Goddard had furnished his Model T with a special rear axle with mechanically remote-controlled gears. The grade down Devil's Canyon was quite steep and very rough. They descended just far enough to build up good momentum when the gears failed to mesh. Goddard applied the brake, but the small transmission brake band in the car was ineffective with the car's abnormal weight load, and they continued to gain speed.

Earl Kiernan lowered his dark brows and glared belligerently at the road rushing towards them. Young Bob Stewart's bright blue eyes took in the total scene: a small wooden bridge spanning from the east to the west side of the canyon; the arroyo thirty feet below filled with dozens of boulders the size of their car and thousands the size of their heads; and, just yards ahead of the bridge the sharpest left turn—surely ninety degrees—with a preliminary right curve around a steep soft earth cut.

Dean Goddard continued to fight the gear shift and the brake, blinking his eyes rapidly as the car travelled faster and faster. They crossed the bridge at a miraculous speed.

Bob looked again at the tall earth embankment just this side of the terrible curve, then broke the tense silence: "Dean, your last chance is to steer the car into that embankment. We'll never make that turn."

Without a word Dean Goddard whipped the steering wheel to the left, and without a foot to spare they crashed into the soft embankment.

As the pounds and pounds of radio equipment settled down, the front end of the car collapsed. The left front wheel was pigeon-toed and the right front wheel was somewhere under the car. It seemed like a trifle, however, to the three grateful men who climbed out of the motionless car and carefully avoided looking over the edge they had escaped.

They began the tedious job of matching up splinters in the oakwood wheel spokes and held them together with the quantities of wire they had aboard.

It took an hour and a half to get "old Henry" back on four wheels, with its gearshift in mesh. They limped into the little town of Tularosa and bought a new wheel.

Thus set, they began to travel again, and were up to a speed of thirty-five miles an hour, about six miles out of Tularosa, when without warning the right front end collapsed and they started grading a new highway across the flats, at a thirty-degree angle to the main road.

Their second post-mortem of the day disclosed the right king pin had broken as a result of the strain of the Devil's Canyon accident.

Dean Goddard caught a ride into Tularosa, bought a new king pin, and walked back the six-mile distance.

It was nearly sunset when he returned, and wholly dark by the time the three men managed to get the car jacked up and the king pin replaced.

They proceeded homeward, with subdued spirit. The Ford's top and side curtains did more to obstruct the view on the last long lap, than to keep out air leaks, dust and rain.

It was nearly ten o'clock when they started the westward climb over old Organ Pass. They had started their journey from the college toward the north, so it was a surprise, and not a welcome one, to find that at the top of the pass the old dirt wagon road had washed out. A detour trail had been pioneered to the higher side of the ridge, but sloped to the north with such a grade that the car would have turned right over and into the washout. The only solution was for Dean Goddard to drive the car a careful inch at a time over the detour while Earl Kiernan and Bob Stewart walked alongside and pushed up on the right side of the car to prevent it from turning over.

They completed their trip without incident, and reached campus shortly after midnight.

With the opening of the 1922-23 school term, KOB added Victrola entertainment to its regular informational programs. Program schedules were printed in the area newspapers. Typical offerings:

Friday, September 8, 1922

Wonderful World of Romance, by John McCormack
Cutie, a fox-trot, by the Paul Whiteman's orchestra
Woodland echoes, violin, flute, harp
Lonesome hours, fox-trot, by Paul Whiteman's orchestra
Evening chimes, violin, flute, harp
Hot lips, fox-trot, by Paul Whiteman's orchestra
General March, Victor Band
Send Back My Honeyman, fox-trot by the Virginians
Repasz Bank, Conway's band, a march
Anna Laurie, by Geraldine Farrar

Monday, September 11, 1922

Little Thoughts, fox-trot by the Benson orchestra
Laughing Rag, Harp-Guitar duet

Syncopate, a medley fox-trot
Dream Kiss, Hawaiian guitars
The Sneak, fox-trot by the Club Royal orchestra
A Sleepy Little Village, by Billy Murray
Baby in Love, fox-trot by the Hackel-Berge orchestra
Are You Playing Fair? a fox-trot by Zez Confrey and his orchestra
Last Waltz, a medley waltz
The Little Bull Calf, a children's story

(As printed in the *Rio Grande Republic.*)

Field-strength studies continued on an informal basis, every time the Goddard family took a motor trip. It was a matter of some disgust to his four young boys that every few miles Daddy would stop the car, set up his radio equipment, and listen, and make entries in his small black radio journal.

Remote control work, successfully used in the ROTC encampment, was used in other pursuits. On October 14, 1922, Goddard took a portable telephone set to the college football stadium, and reported the action to the station, where a play-by-play description of an Aggie football game was broadcast over KOB.

A new standard Navy one-kilowatt 500-cycle spark transmitter was added to the equipment of the Radio Club, giving 5XD a "real hot and high-pitched note" and much greater range. On December 10, 1922, a 500-watt transmitter went into service at KOB. KOB and the Radio Club diverged and became quite separate, with the Club concerned with amateur and relay work primarily, while KOB was a public broadcaster.

* * * * *

Goddard's services to the United States military forces on two occasions, during the Mexican Rebellion and again as head of the buzzer school at State College, were rewarded September 29, 1922 with a commission as Captain in the Signal Corps of the Officers' Reserve Corps of the Army of the United States. His application for commission was supported by a communication from Major J. C. Waterman, of the college's Department of Military Scince and Tactics, which said, in part:

". . . I am fully of the opinion that the service would gain a very desirable asset in obtaining the services of so competent a man . . . Dean Goddard is not only one of the best informed men in the country on Radio matters; operation and construction, but couples with it a pleasing personality, an immense fund of energy and a desirable administrative ability, together with a thorough going Americanism . . . This gentleman is a recognized authority on Radio Matters and it is only through choice that he remains in the position he occupies at this institution he having refused several very flattering and remunerative offers from the large electrical interests . . ."

CHAPTER X

Radio—On The Way

"Conscientious public service was his one ideal. On many occasions he was heard to remark that the public had a right to expect 100 cents of value for each dollar spent. Concerning criticism he would say that it was not the present remarks that concerned him but the ones that would be made ten years hence. What a sensible idea that is! If we, all of us, were more interested in public opinion concerning our work ten years afterward than we are at the time the work is done, how much more effective our lives and work would be.

"I could continue to name good qualities of the one whom we honor today. His wish would be that we respond to the influence of these qualities rather than to talk about them . . ."

PROFESSOR F. H. LYNN, PRINCIPAL
Las Cruces Union High School
in his address: "Goddard, the Citizen"
given at the dedication of Goddard Hall
March 17, 1934

EARLY IN 1923 the health of Warren G. Harding, the warm, old-fashioned small-town American president began to fail. He made a cross-country and north-to-Alaska tour in the summer, was taken ill in Seattle on his way home with symptoms similar to those in food poisoning, although his ailment was diagnosed in San Francisco as a heart attack. He died August 2, and Silent Calvin Coolidge took office.

It was the year of the first non-stop transcontinental flight, from Long Island to San Diego; the year *Time Magazine* was founded; the year the first American dance marathon was held, lasting from March 31 to April 19 and setting a record of 90 hours, 10 minutes; an earthquake destroyed half of Tokyo, taking 150,000 lives. "Pancho"

Villa, who had survived many a bloody fracas during the Mexican Rebellion, was ambushed and killed on a pleasure-drive on July 23. Yankee Stadium opened, and the Yanks won their first World Series. The oriental parlor game, Mah Jong, captured America's fancy; and on December 6, 1923, President Coolidge's message to the houses of Congress was broadcast to the nation.

Radio in New Mexico went to town. The University of New Mexico in Albuquerque completed a radiophone transmitter in January and looked forward to competitive communication with New Mexico College of Agriculture and Mechanic Arts.

KOB's programming expanded in March to answer a request of the United States Public Health Service to broadcast public health information. The same month a series of short "travelogues," describing places of scenic and historic interest in New Mexico was initiated, with the cooperation of the United States Forest Service and New Mexico Chambers of Commerce.

Time and weather reports continued with information supplied by the U. S. Weather Bureau in Denver, and time signals from government stations at Arlington, Virginia (NAA) and San Diego, California (station NPL).

Spring brought the windy season, and Goddard bowed to its limitations of his radio work until May, when he purchased an antenna tower from the Mine and Supply Company in El Paso. The new tower was mounted on the Engineering Building boiler room to support one end of an inverted "L" antenna.

The 60-foot tower atop the dome was also strengthened with $\frac{3}{8}''$ steel cable guys. Goddard appointed young Bob Stewart as the Man at the Top.

"Up you go, Squirt."

"Me, sir?"

"You, sir."

According to Goddard's programme, Stewart was to climb the mast with two steel cables attached to his safety belt. Stewart inserted several little objections, then finally came up with something valid.

"Dean, let's take the coils up to the dome. At least that will lighten the load."

Goddard blinked twice and took a deep breath. "Bob, those cables won't weigh any less up on the dome than they do on the ground. Why do you—oh! I see what you mean. Well, let's get on with it."

The same month the Department of Commerce assigned a 360-meter wavelength to KOB.

Dean Goddard's two older boys, aged eleven and eight, were expert at handling the camping trailer riggings. With his "travelling home" to minimize costs, Ralph took his large family to Mesa Verde

Dean Goddard standing on the tower of the Engineering Building to assist Robert W. Stewart (at top of mast) in attaching supporting cables to the 120-foot aerial. (R. W. Stewart photo)

Earl in the sailor suit and blond Raymond Goddard on their front porch.

Cliff Dwelling in southern Colorado during the summer of 1923. His college family shared the experience in student assembly the following

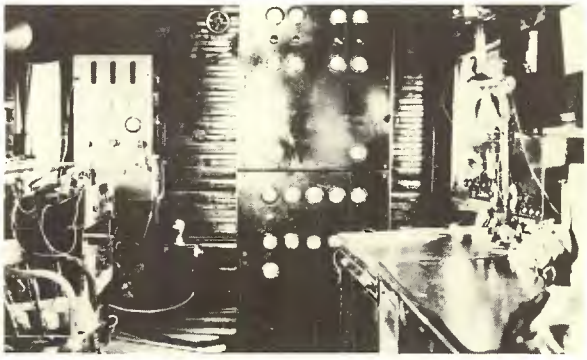
fall, when he described the trip to them, and gave his theories of the ancient inhabitants of the dwellings.

The familial feeling at the college had dwindled appreciably since the World War. Students were more sophisticated, more independent, and the faculty more mobile with easier means of travel to seek better working conditions. Still, to those like Goddard who felt the charm of the slower and more relaxed Southwestern life appealing, and its drawbacks, challenging, the college became "home." Students like Miss Era Rentfrow remained at the college after graduation — Miss Rentfrow served as college registrar all her working life. Charlie Strickland was a "lifer" as head of the buildings and grounds department. One of Strickland's staffmen, Willie Preciado, began fifty years of service in 1919, while he was still a high school student.

The best way to maintain a love affair with the college was to have supplementary income. With this understanding among college personnel, when a faculty member needed a hired service, he tapped the college talent — student or staff — whenever possible.

Willie Preciado was both an industrious worker and a likeable character, renowned both for his wardrobe of funny hats and his success with the ladies (attributed to his being one of the first automobile owners at the college). He spent many weekends doing odd

Goddard's camping trailer used as a mobile radio unit.



The 50-watt transmitter, at left, is dwarfed by the 1000-watt transmitter. Before the end of the year, 1925, K.O.B. was operating with 5000 watts. (R. W. Stewart photo)

jobs at the Goddard home, where his only complaint was The Disappearing Sandwich. He carried a sack lunch every day, but the sack was mysteriously empty by the time he took his midday break. A little detective work revealed young Kenneth Goddard as the scavenger, and with even more discretion, Willie "squealed" to the Dean. Willie was fed posthaste, and the marauding stopped.

* * * * *

On October 9, the portable station again became a mobile unit, travelling to El Paso, Texas to relay a collegiate football game. The station was set up in a tent near the stadium and field plays were reported to the tent by telephone, then forwarded to State College for broadcast.

A smaller cage antenna was erected from the sixty-foot mast to an eastern forty-foot mast to replace the old antenna, which was too large for use on shorter wave lengths.

The Agricultural Extension Service continued its supply of information, moral and financial support, and in October an anonymous donor presented the college with a new radio plant — equipment for an experimental and amateur tube transmitter and the building to house it. This freed the existing equipment for exclusive use in KOB activities. Plans were drawn for a concrete-floored frame building fifteen by twenty-four feet, divided into three rooms: an operating room at the east end of the building, a center work shop and storage area, and a combination clubroom-operator's bedroom at the west end. The operator was on all-night duty after 10:00 P.M. to fulfill the college's membership obligations in the American Radio Relay League.

A site east of the forge shop was selected, and Goddard designed a reverse-feedback transmitter, using two 50-watt radiotron vacuum tubes for oscillators, with plate current supplied by a kenotron rectifier and filter system. Construction of the projects was delegated to the Radio Club, whose new members in the 1923-24 term included L. L. Antes, J. D. Burke, A. Kenneth Tatum, and J. J. Turner.

In November, through the cooperative efforts of Dean Goddard and the Agricultural Extension Service Goddard wrote, and the Extension Service published, *Instructions for Building a Radio Set*

and Principles of Radio Communication, which was distributed as Extension Circular 77, and which was still available from the Extension Service as late as 1965. The 48-page booklet was aimed at youthful Extension Club members and described the construction and operation of a simple single-tube tuner-detector radio set suitable for use of the farmer and ranchman in isolated sections of the country. Goddard's New England practicality shone through in the admonition: "Care should be taken to see that all parts . . . bought are of standard quality, and not of the cheap and worthless variety with which the present day market is flooded . . . By picking up about the house most of the materials used . . . the cost can be considerably reduced."

Reward for completing the project was summed up in the final section of the booklet: "The New Mexico State College, realizing its obligation to the people of the State, has established a powerful broadcasting station, at which a regular schedule of broadcasts is maintained. The present service consists of transmitting daily standard Mountain Time from 11:55 to 12:00 M, followed by the United States Department of Agriculture's weather reports for New Mexico. Also, time signals are sent out from 9:55 to 10:00 P.M. Information of interest to farmers and stock men is sent out following these reports. Concerts and lectures of general interest are broadcasted on Monday, Wednesday and Friday nights, from 7:30 to 8:30 P.M. Special programs are put on as opportunity presents. These include college lyceum numbers, addresses by noted people, as well as all athletic events staged at the college. All daytime games are broadcasted, play by play, as they occur.

"This service will be enlarged and expanded from time to time as the needs and demands indicate."

Goddard's promotional efforts, as well as KOB's growing reputation, attracted a number of students to the college; it was already clear that industry had a place for radio-trained engineers, and interest was growing daily.

CHAPTER XI

Guidelines

". . . Work on KOB was a 'paying job.' The going rate then was twenty-five cents an hour and later was raised, I believe, to thirty or thirty-five cents an hour. I doubt that any station in the country was built for as low a labor cost. It was work we loved and salary was not too much of an item if we could get at least enough work to earn twenty-seven dollars a month. That was the cost of board and room at that time."

ROBERT W. STEWART
Former student of Ralph Goddard (from correspondence with the author)

IN 1924 THE KU KLUX KLAN hit its peak, claiming five million members; H. L. Mencken, "The Sage of Baltimore," founded the *American Mercury;* it was the year of the worst tornado in United States history, with thirty-five towns in Illinois, Indiana, Tennessee, Kentucky, and Missouri obliterated, 800 killed, 3,000 injured, 15,000 left homeless. Political convention proceedings were broadcast for the first time — a lengthy broadcast, with a long, bitter deadlock between the Democrats' Alfred E. Smith and William G. McAdoo, final consensuses supporting John W. Davis, a lawyer and the 1924 presidential candidate; the Republicans stood behind the incumbent Calvin Coolidge, and the Progressive party nominated Senator Robert M. LaFollette of Wisconsin as a third-party candidate. The election returns held a nation-wide radio audience as Coolidge was clear choice of the people with nearly sixteen million votes.

Prohibition continued, and smuggling of liquor into the United States became a substantial business; the Mexican and Canadian borders were busy places, and a natural extension of this activity was the rise of the racketeers. The Capone gang took over Cicero, Illinois in 1924 and opened gambling houses; extortion, bombings, and gang warfare were the order of the day.

There was ample grist for the KOB newsmill, and in March the station added "headline news items" at noon, to supplement their growing newscasts. In addition to general news, the station presented Aggie Alumni news bulletins; all the college basketball games were broadcast from the Aggie gym and a basketball tournament held at Las Cruces High school was also transmitted.

Live programming was quite popular with KOB's audience; on April 18 the college band gave an hour-long live concert and in May the station broadcast the music and speeches given at an Alumni Banquet from 6:30 to 10:00 p.m.

The station received a card from a ship radio operator at Apia, Samoan Islands (nearly 5000 miles away) reporting that he had heard the broadcast, proving the value of the 500-watt continuous-wave transmitter!

KOB was an established station, and the Engineering Department was also in good shape. Hugh M. Milton, II joined the faculty as Head of Mechanical Engineering in 1924, the first engineering department head who would remain more than two years. (Milton, now retired Major General, United States Army, was another lifelong devotee of the small college — ascending to the posts of Dean of Engineering 1933-1938 and college president 1938-1947 — his service interrupted by Army obligations 1941-1945. Milton left the college in 1947 to take the post of president of New Mexico Military Institute in Roswell, New Mexico, 1947-1951. He was chief of U. S. Army and ROTC Affairs, 1951-1953; Assistant Secretary of the Army, 1953-1958; and Undersecretary of the Army, 1958-1961. He again resides in Las Cruces, where he recently retired as Vice President of First National Bank of Dona Ana County in charge of Public Relations and Business Development, and his continuing interest in the college

includes his recently-completed history of the Engineering Department.)

W. Evan Carroon, an NMA&MA graduate, stayed on at the college as electrical engineering professor, comprising with Goddard the entire electrical staff. Carroon, however, was another stable faculty member, remaining at the college until after Goddard's death. The engineering department began to claim its place as a distinct discipline in higher education. Now, as his goals again reached fruition, Goddard no longer suffered the feeling of "no place else to go." He was thirty-seven years of age, a family man with four vigorous sons, a leader in his circles of education, engineering associations, and the community. Indeed, the days weren't long enough to contain all the things he wanted to do.

He had reached a point of revelation, an illumination of what mattered in this life, and he shared his philosophy with NMA&MA students in his essay, "Selecting a Vocation," which appeared in the May 6, 1924 issue of the *Roundup*:

> The young people of today have a serious problem to face in the selection of a vocation. We live in an age of specialization and concentrated effort. Great success is attainable only for those with natural ability and eternal activity along some specific line. It has been truthfully and well said that everyone has talents of one kind or another. Allowing this and assuming everyone aspires to great success, the problem every young person has to face sooner or later in life is the correct determination of his or her native capacities.
>
> This determination is no simple matter. It should be given long and serious thought. Conclusions in this regard should not be jumped at too quickly. The evil of this is clearly demonstrated about us daily as we observe the numerous so-called misfits, or as aptly expressed by some, square pegs in round holes. The placing of round pegs in round holes, square pegs in square holes, and hexagonal pegs in hexagonal holes is the problem.
>
> This problem is rendered much more difficult of solution because of many human tendencies which overrule clear and sane thought on the subject. A few might be mentioned by way of illustration. Such are the attractions of the imagination by the mysterious, the majestic, or the unknown; a gambling instinct coupled with an unwarranted desire for wealth or distinction; a misconception of what success really is; and probably of more seriousness than any other, the tendency to take the path of least resistance.
>
> The first tendency is well illustrated by the average small boy who has just been to a circus. His total ambition is to become a clown or animal trainer or trapeze artist. The city boy visiting the west will invariably aspire to become a cowboy. Likewise, the country boy after visiting the city thinks that becoming a

policeman or a fireman would be the height of glory. That this tendency does not cease when the boy grows up is substantiated by statistics of enlistments in the army and navy. The fellow living inland away from the ocean and possibly never having seen it invariably selects service in the navy. On the other hand the young men of our seacoast towns are usually to be found in the army. In all these cases the fancy is attracted and judgment is based on a supposed desire rather than on knowledge and a genuine liking.

Another human trait responsible for misleading many is an overzealous ambition to attain fame or fortune by some short cut method. The gambling instinct plays a large part in this. While many realize that for every one that succeeds by the short cut method, nine others make utter failures, they are willing to take a chance. Also they fail to consider that generally the one in ten that succeeds, does so because of natural ability and training and not thru pure luck or chance.

A common failing among young people of today is their conception of success in life. They conceive of wealth, distinction and leisure as synonyms. There is nothing more false. To me, happiness seems the best synonym. Surely wealth is not necessary to happiness. In fact I know of more unhappiness among the rich than I do among the poor. Distinction may bring some happiness to one, but on the other hand true happiness invariably leads to distinction. Show me a man or woman who is continuously happy and contented and you will see one who has a host of friends who hold him in the highest esteem. Is this not true distinction? The records of the courts prove conclusively that people of leisure have far more troubles and difficulties than others. In this regard there is an old and true saying that "Satan finds mischief for idle hands to do." Often students tell me with sincerity that they are glad to get back to College and work after a summer vacation. Personally I cannot conceive of anything more boresome than having nothing to do. I believe the humblest being can be just as happy and do just as much good for himself, his neighbors and for posterity as the president of the United States or of the largest industrial corporation in the world.

But more serious than these is the tendency of a very great percentage of young people to just drift. They travel along from day to day, doing those things which for the instant seem most important, or are forced upon them, with little regard to any concerted effort in a definite direction. Dame Fortune plays many pranks on these and usually receives the full blame. Little do they realize even after failure that a little effort and clear thinking on their part would have averted disaster.

The question of how to determine one's natural abilities is thus the important thing. No fixed rules can be laid down for a solution to this problem. Long and continual observation of ones self under various experiences coupled with some clear thinking will undoubtedly render the best solution. It is a problem everyone must solve for himself. In fact I am almost led to believe by my teaching experience and observation that success is really coupled with the proper solution of the problem.

As a general observation I would say that a boy who has difficulty in learning which way to turn a monkey wrench to unscrew a common nut would not make

a great success as a mechanic. Neither would one who was unable to actually distinguish between the various pitches of sound be liable to become a great musician. The indications are that if you chafe under the delay caused by the breakdown of your auto and are thankful you have somebody along to tinker it up, you would not make much of a success at experimental research work. On the other hand, just because you like to play with your radio set is no sign that you would be entirely successful as an electrical engineer.

Fortunately the present day life and educational system offers our young people many and varied experiences which can be well utilized in the solution of this important problem. Make full use of all opportunities and as you pass thru the various experiences analyze your reactions to them to the end that you "Know Thyself," solve the problem, and attain the success which will inevitably follow.

In February Goddard attended the tenth annual convention of the New Mexico Electrical Association in Albuquerque, where he spoke on: "Meters, and the Education of Metermen for the Public Utility." He travelled to San Francisco for the tenth annual convention of the American Association of Engineers June 11-13; then to the University of Colorado for the 32nd annual meeting of the Society for the Promotion of Engineering Education June 25-28; and finally to Pennsylvania, where he spent the rest of the summer working on radio problems at Westinghouse's East Pittsburgh research lab. There he worked with B battery eliminators for receiving sets and he also worked at KDKA's Hill Station with short wave experimental transmissions. The radio experimental building was a one-story concrete and brick building located about a mile east of the East Pittsburgh Works on a hill, and great daylight broadcasting accomplishments were made from the special-wave station.

While the Agricultural Extension Service continued as KOB's chief ally, great credit as a "benefactor" was also due the Westinghouse Company for their active interest in KOB, and for their material assistance in the form of equipment provided at near-cost prices. Goddard's principal contact through Westinghouse was Cliff M. ("High") Mackey, nicknamed after his 6'6" height.

One means of holding down costs was to use the motor-generators in the electrical engineering laboratory on the second floor of Goddard Hall as a voltage supply. The same generators, of course, were also

used for laboratory work by electrical engineering students, so test work on the radio transmitter had to be fitted around laboratory scheduling.

One Saturday afternoon Robert Stewart was rewiring the modulator of the one-kilowatt transmitter and was inside the panel frame, with the generators turned off, naturally. Meanwhile, Professor Carroon decided Saturday afternoon was a good time to go upstairs to the student lab and check over the generators. The generators could be started either from the lab or by remote switching from within the transmitter room, so Carroon turned the switch in the lab.

Fortunately, the generators took several seconds to build up to their full 2,000 volts D.C. value. The initial charge which Bob Stewart felt at the back of his neck, where it rested against the steel panel frame, was enough to motivate him to leave the area. In his haste he took yards of wiring with him. He received only a slight burn on his neck, but the re-wiring chore was considerably increased by the accident.

While Stewart made light of the incident, Dean Goddard was appalled and took immediate measures to prevent recurrence by installing safety wiring and a better switching arrangement. The accident also was the first argument for an independent voltage supply for the radio station.

* * * * *

Radio listening became a family affair at the Goddard home. Previously the Goddards had occasionally held "family concerts," with Frances singing and Ralph playing his cornet. Frances considered the age of six to be the time for the boys to take on two gentle responsibilities — they had to weed the garden, and they had to learn music. She started each of them on the piano. Kenneth played the trombone later on, and eventually became a state competition winner on that instrument. Earl played bass and snare drums, and continued at the piano, though his personal ambition was to play the organ. Raymond played clarinet and saxophone, and Roy took up the piccolo when he reached high school age.

However, with the radio to listen to, and so many burgeoning pressures outside his home, Ralph abandoned his musical efforts. Frances continued to sing in the choir and frequently entertained at faculty

gatherings or special college assemblies. The family usually attended the Community (Presbyterian) Church in Mesilla Park. Ralph went when he could, and was always on hand when his special talents were required, such as for operating the "magic lantern" for church programs, and it became a tradition for him to electrically light the church Christmas tree. He used painted flashlight bulbs soldered to a pair of bell wires, which were attached to battery clips. The battery was hidden under a sheet beneath the tree, where they were turned on and off. The church had the first electrically-lighted Christmas tree in the whole community, retaining the lights each year until Christmas Eve, when the lights were returned for use on the Goddards' home tree.

The boys often visited the Episcopal Church, the only other church in Mesilla Park. The Episcopalian minister, Hunter Lewis, was a neighbor, and his daughters, Edith Hunter and Abby, used to help dress the Goddard boys for church. Beulah ("Boots") Lewis, a third daughter, was within a month or two of Kenneth's age and the two youngsters began "keeping company" early in their high school years. The Episcopal church held many interesting activities for young people in the Parish Hall, and denominational lines were casually crossed.

Ralph still had his radio lab in the basement, and the room formerly used for the live-in maid was eventually turned into a scientific laboratory by young Roy. There was a workshop in the basement, which Kenneth specialized in messing up, and Earl specialized in cleaning up. The family worked out a good division of labor, with the boys earning their allowances by working in the garden and doing similar chores around the house. Ralph taught his sons the value of a dollar early in life, befitting both his New England heritage and his modest college salary. "What you can't pay for, you can't have," was his feeling about special luxuries. He believed in paying cash for his own purchases, in spite of the new attraction of installment buying.

It was a sound way of life; but he was as vulnerable as other college professors when "touched" for a loan by a needy student. The radio station helped lighten the burden, however. There were always odd jobs to be done, and students whose interest made the going student-employment rate of 25¢ an hour tolerable could generally earn necessary funds.

Guidelines

With the opening of the 1924-25 term, KOB broadcasts included alumni news as a regular Monday night feature, the noon headline news summaries continued, and a new service was inaugurated the end of October: twice daily, KOB broadcast highway condition reports, which were heard and transcribed by Chamber of Commerce offices and garage owners throughout the state, and the reports were posted prominently for the benefit of travellers in New Mexico. Information came from District Highway Engineers, who filled out standard forms and forwarded them to the State College Highway office every week. Road washouts, weather conditions, and estimates of the time required to drive each area of highway were reported.

Goddard continued his sampling of KOB's broadcast range as he travelled away from the college. The station's daytime range was calculated as one thousand miles. Another important source of feedback came from the audience itself. On November 4 the college received a letter from A. J. Coats, a '20 alumnus, who wrote from Fort Collins, Colorado:

"Several radio fans here are very much impressed with the Aggie broadcasting station, and when anyone asks me where I am from, I tell him State College, New Mexico, and he immediately connects it up with the radio broadcasting station. You may tell Dean Goddard for me that he is getting some real good advertising for the institution out of his station."

Live programming expanded, due to its enthusiastic reception by the KOB audience. On November 21 a group of El Paso artists performed on KOB: the female Ariel Quartet, Chaplain Moon of the 8th Cavalry, and Mr. Silvers, a violinist, who performed on an Italian instrument made in 1727 and valued at $3,000.

The Aggie band was among other local talent which supplemented recorded-music programs. "Mike fright" came into being as a technical problem. The story is told that Ed Wynn, seasoned veteran of the footlights, froze like a statue the first time he was confronted with a microphone in an empty room. He wasn't unfrozen until someone rounded up maids and janitors and technicians to form a live audience for him.

With the growing use of live talent, Goddard prepared a list of "Rules for Broadcasters" to guide KOB's guest speakers:

Work your personality into all of your talks. Remember that your audience will be a curious one and they will begin to form mental pictures of you and your activities.

Do not get the idea that it is necessary for you to put over highbrow statements or ideas that appeal only to the highly experienced. People like simple English and clear concise statements.

Even though you may type your lecture be very careful not to rattle the paper before the microphone and give them the idea you are reading to them. Talk slowly, articulate clearly, make some of your statements two or three times, going back over them if you think there is a possibility of their not having been understood. Do not talk loud and above all things do not clear your voice before the microphone. Leave the microphone and smother the sound with a handkerchief if you have to cough.

When you are introduced, greet people with "How do you do, folks" or some other kindly greeting and always have a soft, friendly tone in your voice. At the finish bid them goodby in a friendly tone just as Uncle John does and try to get some feeling into the goodby.

Do not tell what your next subject next time is to be, and if you succeed in making your subject interesting, you will find that the people will be curious to know what you are going to talk about and they will be on hand to get your message. In other words, rather keep them on the anxious seat, always wondering what the next message is to be.

Carry on your talk just as if you were talking to five or six people and just as if you knew them well; for the manner in which you draw your listeners to you is just as important as what you tell them.

CHAPTER XII

The Man Who Never Walked

". . . As I think of Dean Goddard, his ability to organize is probably his outstanding quality . . . I would also mention his unselfish disposition and cite you to the tireless work of supervision he exercised during the planning and erection of the building now housing the Las Cruces Union High School. No individual owner of a dwelling or business building ever supervised its erection more carefully than did Dean Goddard the building just mentioned. The time for this supervision amounted to hours and in many cases these hours were not easy for this busy man to find.

"The quality of efficiency was never questioned when Dean Goddard expressed an opinion. The testing of the strength of the cement and other building material was done in his laboratory and under his individual supervision. His ideas were carried out in the arrangement and adaptation of the building to its various needs. In spite of the fact that the fund at the disposal of the authorities was too limited in many cases, the building stands today as a memorial to him and to his co-workers."

PROFESSOR F. H. LYNN, *Principal*
Las Cruces Union High School
in his address:
"Goddard, the Citizen"
given at the dedication of
Goddard Hall
March 17, 1934

JANUARY, 1925

"Now just a word as to the method of treating this work. The course has been outlined and is being given by an operator who had continuous experience throughout the War teaching signal corps enlisted men to become operators.

"To most people, telegraphy is a conglomeration of dots and dashes. Theoretically it is. But so also, any spoken language is made up of

words composed of letters. Telegraphy is a language. Its component parts are dots and dashes. But the telegraphist never analyzes the letter sounds or word sounds transmitted by telegraph any more than the linguist analyzes word sounds into letter sounds. I have seen experienced operators of long standing who could not tell you if you asked him suddenly, what the composition in dots and dashes was for any letter or group of letters. But let the dots and dashes be sounded to him and he would not hesitate an instant to tell you what it was. We are therefore not going to try to have you memorize the code as a combination of dots and dashes. We are going to transmit a sound and tell you that sound means something. The idea is for you to get your subconscious mind to recognize a sound as a definite thing. For instance, this is the letter A: (dot, dash). Sit down to your practice set the first opportunity you have and reproduce this sound: (dot, dash), (dot, dash), repeating after it each time: (dot, dash -A) (dot, dash -A), etc.

"In a like manner we may take the letter B: (dash, dot, dot, dot).

"We can now go on to C: (dash, dot, dash, dot) is C.

"(dash, dot, dot - D).

"And then we can take E. This is the simplest of the letters: dot - E).

"(dot, dot, dash, dot) is F.

"(dash, dot, dot) is G.

"(dot, dot, dot, dot) is H.

"(dot, dot) is I. This is somewhat like (dot - E) and may be confused with it if you are not careful.

"And last we have J: (dot, dash, dash, dash) is J.

"For the benefit of those who have just tuned in, this is radio KOB, the New Mexico College of Agriculture and Mechanic Arts at State College, New Mexico, broadcasting a course in international telegraph code. This course is free to anyone desiring to register for it. There is no expense connected with it other than the cost of postage and for a practice set to practice the lessons on. We would be glad to have any that desire to apply to the Radio Department, State College, New Mexico for application blanks. The lessons will be given every Wed-

nesday night at the regular broadcasting period on KOB from 7:30 to 8:30 mountain standard time."

February, 1925:

"Code test at six words per minute

"The College has one of the most completely equipped broadcasting stations in the southwest. A smaller station is used for experimental work. These were constructed almost entirely by students and their operation gives the students practical experience."

"Code test at ten words per minute

"Engineers trained in this college have been unusually successful, from Spain to the Philippines and from Pittsburgh to Chile. Recent graduates are making good with the large corporations. The college offers five courses in engineering: Civil, Mechanical, Electrical, Irrigation, and Chemical."

1925 was a year of big news stories: the trial of John T. Scopes in Dayton, Tennessee, where the state legislature had made teaching of the Darwinian theory of evolution illegal. Scopes, a high school teacher, was defendant in a test case and was convicted and fined $100, although the highest Tennessee court later threw out the conviction on a technicality.

General Billy Mitchell, in speeches and magazine articles, charged incompetence in the highest levels of the Army and Navy. He was court-martialed, reduced to the rank of Colonel, and suspended from duty for five years.

America's first woman governor, Nellie Taylor Ross, was installed in Wyoming, and two weeks later Miriam ("Ma") Ferguson became governor of Texas.

Many Americans were playing the investment game, and action on the New York Stock Exchange was daily news. Electric refrigerators and canned goods were new products, and advertising became big business, making brand names nationally known, as were such maladies as "halitosis." The *New Yorker Magazine* made its first appearance, as did a raft of movie and "true confession" magazines; and the first crossword puzzle book was published to make yet another claim on America's new found leisure.

Radio gained popularity, with single-tube Crosley "50" radios selling at $14.50, headphones available at $3.75. Thanks to radio, music

took on fashion: "Barney Google" and "It Ain't Gonna Rain No More" were two of the most popular songs echoing across the country.

Calvin Coolidge's inauguration in March was the first inauguration broadcast over radio, and an equally memorable event was the debut of "The Amos 'N' Andy Show," which became the most popular show on the air.

KOB, formerly a class "C" station, became a class "B" station in January, 1925, when the Third Radio Conference in Washington abolished the "C" class. The station was assigned a new, exclusive wavelength of 348.6 meters, and allowed to boost its power to 750 watts. Station KFLR, the University of New Mexico's station in Albuquerque, was the only other station in the state with appreciable power (100 watts). KOB was definitely the leader in the state, in the Top Thirty nationally, and, among college-owned stations, equalled only by the University of Wisconsin's 750-watt station WHA.

The nearest large stations were KOA in Denver (1500 watts, WBAP in Fort Worth, Texas (1000 watts), and WEAY in Houston, Texas (1000 watts).

Ralph Goddard, with his administrative duties as dean as well as a teaching load, also had his talented and hard-working fingers in a great many other pies. He was a Rotarian, a Mason, a member of Ballut Abyad Temple (Ancient Arabic Order Nobles Mystic Shrine) in Albuquerque, a Reserve Signal Corps captain, and officer in several educational and engineering associations.

He was also president of the Las Cruces Union High School Board. His background at Gascoigne and Shattuck served him well in reviewing plans for a new high school building, and in January he broke ground for the building, on Alameda Street in Las Cruces.

He also began, early in the year, to review with Hugh Milton plans for a group trip to Chihuahua, Mexico, by the college's chapter of the American Society of Engineers. It was one of the first field trips undertaken from the college, and possibly one of the first international field trips ever made by any college group. The tour plans, which included inspection of El Potosi Mine, the American Smelting and Refining Company's lead smelter (the largest in the world), a Mexican

brewery, and other industrial sites, seemed to Milton invaluable experiences for the engineering students, who, at NMA&MA, were rather remote from industrial activities. Milton's enthusiasm was notably justified by the successful trip in March, 1925.

All the while, Goddard continued his field strength studies of his station and others. Typical remarks in his "listening logbook":

"Static quite bad for noon. Voice just barely audible at times, not distinguishable."

"Static crashes."

"Static grinders with crashes."

"Died out half through Road Reports. Feedback at start for half of weather report."

"Static very bad. Local thunderstorm. Voice clear, but static too bad."

In November, a special test was made while Goddard took the train to Albuquerque: the test consisted of one minute of time signals, then voice as usual, then voice directly into microphone.

"Dona Ana—9:30—didn't get first voice
"10:30—quality good
"11:30—didn't get time signals; static bad from train
"12:00—heard time sig. O.K., head phones very weak, no voice
"12:30—interference very bad, crackling—voice heard slightly, but unintelligible.
"1:00—(San Marchial) Time sigs. audible OK. Static very bad at standstill. Crackling begins with motion (of train). 1:00 P.M. Couldn't get buzz of transmitter up to 1:04.
Telegram to stop test sent from San Marchial.
"10:00 P.M.—(in Albuquerque) Voice audible, but unintelligible. Static very bad."

The same evening, in Albuquerque, he monitored station KFI, E. C. Anthony, Inc.'s powerful 1500-watt station in Los Angeles, with these observations:

"Franciscan Hotel: 3rd floor—KFI barely audible with headset
"5th floor—better, but not loud."

Radio power could be roughly determined in 1925 by the "measuring sticks" of current and frequency. Goddard knew approximately

how much energy was required for good reception, but, because of the mountainous terrain surrounding the station, it was difficult to tell how much transmission energy would be required to send strong signals throughout the state.

He decided to elaborate his field strength studies before making any more changes in the transmission equipment. Inquiries sent to the various manufacturers revealed that ready-made measuring equipment was beyond KOB's budget, so Goddard developed his own instruments.

A portable super-heterodyne receiver was fitted with measuring instruments which could roughly determine the degree of modulated energy received by it under standard operating conditions, and this apparatus was used to survey the territory surrounding KOB. Comparative studies were made from stations KYW (Chicago) and WHB (Kansas City), and Goddard decided that ten kilowatts would be necessary to achieve the results he wanted.

He spent the 1925 summer working with General Electric Company at their Schenectady and South Schenectady plants doing rather disappointingly routine adjustments and testing of government radio beacons. Back to college, where he drew plans for a ten-kilowatt transmitter, to accord with the findings of his field-strength measurements.

Goddard's myriad activities gave rise to several nicknames. To his students, he was simply "Dean." To his affectionate colleagues, watching his slight figure loping across campus from one commitment to another, he was called: "The Man Who Never Walks," and his radio interests gave him the inevitable tag, "Sparks." Although he thrived on activity, the strain of his accelerated pace showed up in his old habit of blinking his eyes rapidly, a practice so constant that his behind-the-back moniker among students was "60-Cycle Goddard."

The agricultural division of the college began to pay for some of its broadcasting time, which enabled the station to operate on a little more businesslike basis. Rather than depending on a schedule of volunteer personnel, two students were hired as announcers in the fall: H. H. "Holley" Lisle and Robert W. Stewart, the youngster who survived the Devil's Canyon *et al* mishaps, and the previous year's

incident when he was jolted while wiring the one-kilowatt transmitter. Thus Bob was on hand for another catastrophe.

KOB's transmitting tubes were still powered by the engineering lab's 110-volt supply. The tubes required only about eleven volts, and to accomplish the voltage drop, a rheostat was placed in series with the 110-volt circuit. Someone in the laboratory had turned the rheostat out of the circuit, and it was Bob who discovered the meddling when he went into the transmitter room to start a broadcast, and innocently closed the starting switch.

He phoned Dean Goddard at his home. "Dean, I just burned out the tube filaments at the station. That's why we're not on the air."

"Hmm. How'd you do that?"

"I just closed the starting switch," he said, with simple truth.

It was a major setback, but the Extension Department showed its all-weather friendship by funding the purchase of new and better Westinghouse Electric water-cooled ten-kilowatt tubes.

The water-cooled tubes required running water circulating around the plate of each one. A water supply ran into the radio room and each tube had about thirty feet of rubber hose as well as a high-voltage lead connected to each plate. The water provided sufficient resistance to preclude a direct short to ground. Some new difficulties were experienced with leakage.

The mishap brought KOB one step nearer to getting an independent electrical supply.

* * * * *

Bob Stewart dropped out of college for the rest of the year, and went to work in Los Angeles.

C. F. Monroe, head of the Agricultural Extension Department, directed a formal program of agricultural information which went on the air in October, on Monday nights. The programs consisted of "Farm Flashes" and a "Housekeepers Chat" as regular features, with special talks presented by the agricultural school faculty. The initial program included a discussion by home economists, special lectures by agriculture professors, and a report on "The Agricultural Price Situation for New Mexico." The following month a "Question Box"

feature was added to the program, with questions from listeners answered on the air.

A Friday night musical program also started in October, under the direction of Miss Adelaide Dampiere, music instructor at the college. To facilitate the growing trend toward live entertainment, Goddard converted the west room in the college Music Hall into a studio.

In the "Radio Times" column of the El Paso *Times* (November 29, 1925), Goddard wrote an essay discussing the state of the broadcasting art:

> Radio has become of such importance within the last couple of years that the manufacture of equipment is now considered one of the major industries of the country. This industry has grown to these proportions within a period of approximately three years.
>
> Notwithstanding the phenomenal development of the radio industry . . . there have been no new discoveries or inventions of any consequence since the time of the World War.
>
> Practically all of our present knowledge, circuit arrangements and equipment, lacking minor reinforcements, was known and used during the war. There are possibly two exceptions to this in our knowledge, in the action of the shorter wave lengths of radiated radio energy and the utilization of known principles of the transmission of radio pictures.
>
> . . . Radio communication is naturally divided into three major divisions, i.e., transmission, dealing with the production of modulated radio wave motions through space; the propagation of the wave motions and the receiving in which the wave motion is transformed into sound or other effects by which the human senses are affected.
>
> In the field of transmission the most essential equipment is that producing the high frequency currents which cause the so-called carrier wave. For this purpose various schemes have been devised and tried, such as the discharge from charged condensers, the negative resistance characteristics of the electric arc, the electric generator or alternator specially designed for this work and the valve action of the thermionic or vacuum tube. All these schemes have been tried with more or less success, but all are apparently now giving way to the last mentioned.
>
> Included in the transmitter is that equipment which modulates the carrier wave. Telegraphic modulation entails no particular difficulties. On the other hand, telephonic modulation is rather a complex process. In this field marked tendencies have appeared. After varied experiences with various types of microphones, the use of the double button carbon granule type is quite universal. To amplify the weak microphonic currents, transformer inter tube circuits are rapidly gaining preference over the resistance coupled and the impedance coupled circuits . . .
>
> In the realm of propagation of radio waves, we have really developed some

new ideas. The actions of short waves have been known to a limited degree for a long time . . . and (both) short wave and polarized wave propagation is now being put to useful work and promises big future development.

. . . In general we may say that there are some well defined tendencies in receiver design. Chief among these has been simplification and increased ruggedness. Greater use is also being made of radio frequency amplification with consequent decrease in size of the required aerial system. Use of tuned intertube circuits and the superheterodyne principle to increase the signal-static ratio is becoming common.

Special tubes for audio power amplification are necessary because of the common use of loud speakers in place of head sets. Quality demands a tube functioning efficiently for each step of the receiving process so that the reflexing of circuits and double functioning of tubes is going into discard. The use of lighting circuit currents to replace messy batteries is a welcome step forward. Quantity production and simplification have, as would be expected, greatly reduced the cost of radio equipment.

In conclusion I might mention again the new development of radio pictures and radio vision. While these things are yet more or less experimental and laboratory processes, progress has been made to the point where it is not a prophecy to say that in the not distant future radio pictures and radio vision will be the common thing, as is broadcast receiving today.

CHAPTER XIII

Big Plans and Small Successes

". . . He was a man who never, to my knowledge, discussed his troubles, problems, or disappointments with us. When it was impossible to obtain the necessary funds for some equipment at the time, he merely told us that things would be delayed awhile and that we had other work to be completed in the meantime, whereupon he 'dug up' another project either in the electrical labs, the foundry, or the machine shop which would allow us to earn enough to meet our board and room . . ."

ROBERT W. STEWART
Former student of Ralph Goddard
(from correspondence with the author)

IN 1926 NINETEEN-YEAR-OLD Gertrude Ederle of New York City became the first woman to swim the English Channel, besting her masculine predecessors with a time of fourteen hours, thirty-one minutes. In August Warner Brothers Studio used the Vitaphone, the product of Western Electric Company and Bell Telephone Laboratories, to produce background sound (still no "talking") in the first sound movie, *Don Juan*. And 1926 was the darkest year for the matinee set, when Rudolph Valentino died in New York at the age of thirty-one.

In the heyday of the Florida land boom a hurricane struck, killing 472 persons and injuring 6,381 (and ending the boom); commercial air travel suffered its first bad accident, in New Mexico, killing all five passengers and the crew of three.

One out of eight persons of college age was in college, and briefly-clad coeds "flapped" to fox trots, the Charleston, and the Black Bottom.

Radio reached a new height with formation of the N.B.C. network.

KOB refined its field strength studies with an "audience participation" test on January 18, 1926. During the one-hour period that evening, the output was dropped to half-power to determine what effect the drop would have on transmission range. The "test" was the announcement, at lowered power, that copies of Stevenson's Radio Call Book would be sent free of charge to everyone who wrote to the station for it.

The test cost the station 176 copies of the book, in response to letters from the following states:

Arizona (3 letters)	New Mexico (12)
California (23)	Nebraska (22)
Colorado (13)	North Dakota (3)
Idaho (7)	Ohio (1)
Illinois (3)	Oklahoma (5)
Indiana (1)	Oregon (2)
Iowa (14)	South Dakota (11)
Kansas (20)	Texas (18)
Minnesota (1)	Utah (3)
Missouri (5)	Wyoming (9)

The field strength study indicated that "dead areas" were usually near the station. Goddard presented the results of his two years of field strength studies in a paper, "The Measurement of the Field Strength of Radio Radiations," before the New Mexico Association for Science in Santa Fe, on November 5, 1926.

* * * * *

Programming continued to expand; on February 16 the College's Spanish Club began a monthly series of music and lecture programs. The same month, Mrs. Grace Nichols Hume presented a "Children's Night" on KOB, a program consisting of piano selections and children's stories, and in a later program Mrs. Hume gave a lecture on "The Music of the Folk Dances of Many Nations." Other talent included Jewell Glen Crosby, a voice student at the college, who sang many times over KOB. Alda and Leatte O'Hara, who sang in duet, were also quite popular (Alda was later postmistress at Las Cruces).

The Boys' Band from Columbus, New Mexico, presented a musical program on March 5, 1926. KOB was gaining statewide participation at both the performing and the listening ends.

This was to be a big year for KOB — but Goddard had other commitments to fulfill at the college, not all of them academic. He was frequently assembly leader at college assemblies, and often provided entertainment at the same gatherings. He was usually the man chosen to substitute for President Harry Kent, when that busy man had a schedule conflict. And when the intercollegiate sports calendar was light, fans rallied to watch faculty-student basketball games, where the teams had such blunt names as "the Fats" and "the Leans." Goddard was a "Lean," and his energy and ambidextrous skill more than compensated for his short stature. (He was naturally left-handed, but the New England school system required him to learn to write with his right hand, and he could use either hand with equal facility for most tasks.)

Bob Stewart returned to campus in the fall.

The Department of Commerce allowed KOB to boost its power output to 1000 watts, and some major construction went on around the station. The fan aerial was replaced with a twin-cage T-type aerial; the flat-topped aerial consisted of two cages 110 feet long, built of ten wires equally spaced on nine-inch copper rings. These were spaced twelve feet apart by three light wooden spreaders, one at each end and one in the center where the lead-in joined it. The lead-in consisted of twelve wires separated at equal distances by fiber disks three inches in diameter. Fifteen feet below the spreader, the lead-in split into two parts, with six wires going up and joining with each of the cages of the flat top. This design proved much more effective than the former fan-type aerial.

Less effective was a counterpoise which was erected on the ground back of the Engineering Building and under the aerial. The counterpoise was made of twenty-foot masts spaced 135 feet apart lengthwise of the aerial and thirty feet apart crosswise, with twenty insulated wires stretched between. The wires were all joined together electrically at the ends, and at the center, by a cross lead which led to the ground

terminal of the transmitter. However, the counterpoise offered no increase in radiation at all, and because of its elevation, *decreased* the effective height of the antenna system. It was promptly removed in favor of the old "round round ground" system.

Next, new transmitter designs were considered. While all previous KOB transmitters had been of the Heising modulated, Hartley oscillator, type, the large and growing number of stations on the air made interference a serious problem. Further, a slack aerial swinging in the wind could affect the frequency of the direct-coupled oscillator type of transmitter. A new "master oscillator type" transmitter developed by the General Electrical and Western Electric Companies promised improved frequency control. Goddard cautiously decided to experiment.

His experience had shown that the frequency of oscillation in the older type sets changed without any manual change of circuit constants, probably as a result of heating of the various parts, which altered the physical dimensions enough to affect the frequency. This effect was pronounced when other than air dielectric condensers were used, although good mica condensers operated at conservative current ratings gave nearly as good results as air condensers.

With congested airways, the primary goal was to gain automatic stabilization of transmitter frequency. Crystals properly ground and operated in piezo-electric circuits gave best promise, and required use of the master-oscillator type circuit, as the crystal oscillator output was very limited.

Goddard used the old 50-watt set as a master oscillator to feed the oscillators of the 1000-watt set as a radio frequency amplifier in his experiments. Results were highly satisfactory, and the master-oscillator type was endorsed for the new transmitter design.

Next problem was a source of high potential direct current for the plate supply. Other high-powered stations across the country were using kenotron rectifiers with filter systems. Another possibility was to use mercury arc rectifiers. All previous KOB sets had used the Engineering Laboratory's motor-generator sets. After much deliberation, Goddard decided to stick with motor-generators — but *not* those

accident-inviting time-shared generators in the Engineering Building!

While the foregoing engineering problems were readily soluble, there were two other knots to untie. Money, as always, was a problem. And as was nearly the matter of course, the Extension Service came to aid, to finance the necessary new generating equipment. Curiously enough, the last challenge was to find a manufacturer willing to supply the motor-generator sets. Goddard approached at least half a dozen manufacturers of generating equipment, including several who specialized in high-voltage equipment. Again, it was an old ally who filled the order — the Westinghouse Electric and Manufacturing Company agreed to build the generators to Goddard's specifications and to furnish motors to drive them, but refused to attempt the manufacture of Goddard's specified insulating couplings for connection of the units. Completion of the manufacture would take nearly a year, however.

Meanwhile, Goddard built and tested the first stage radio frequency amplifier, using the old 50-watt transmitter as a master oscillator. For a plate supply he coupled two 2000-volt, two-kilowatt motor-generator set generators in series, obtaining between 4200 and 4400 volts. One generator was well insulated from its bed-plate and coupled to its motor through an insulating flexible coupling, and this machine was used for the higher potential machine of the pair. Its frame was connected to its negative terminal so the potential difference between its windings and frame was never greater than the potential difference of the machine itself, for which it was insulated. The first stage amplifier used a Western Electric 5000-watt water-cooled tube.

The makeshift apparatus worked so well the old 1000-watt set was discarded. By summer, KOB increased its output to an average of about 1200 watts, gaining steady frequency control and improved reproduction quality.

The second stage radio frequency amplifier was readied for use as soon as the power supply equipment could be provided, with plans to use it as a five-kilowatt set at first to test its performance before carrying out the design for a full ten-kilowatt output. Thus, only two ten-kilowatt tubes (Western Electric Company, type No. 220-B) were used, while the design ultimately would use four. This seeming excess

of wattage was deliberate: with quality as his paramount standard, Goddard planned ample energy capacity in all equipment to handle the great range of fluctuations in voice and music broadcast. Overloading of equipment by the slightest degree resulted in distortion.

Now, with the equipment on order and the design proved in the makeshift apparatus on hand, another problem appeared. The old 1000-watt transmitter occupied only nine square feet of floor space, while the new equipment would call for twenty-five square feet and a minimum of three feet of clearance all round, an impossible demand of the old transmitter house. Parcelling this reality to one corner of his mind, and letting ambition and optimism take control, Goddard drew paper plans for a new building which would satisfactorily house the new plant, including the power machinery.

In order to accomplish severance of the radio station from the electrical engineering laboratory's generators, funds were provided for a partial building — the foundations and floor for a new transmitter house. At that, it was a major piece of construction, cast of concrete with the conduits inserted for the electrical conductors, water and sewer connections. Structural steel was cast into concrete blocks to form beds for the motors and generators following drawings of the machines furnished by the manufacturer. The Practical Mechanics department at the college made patterns for the flexible insulating couplings to be used on the main units and the steel castings were made in the college foundry, then machined, with bakelite insulating disks cut to fit.

Part of the new equipment arrived at the college early in December. The units were assembled and connected on the concrete foundation and a corrugated iron shed was erected around the machines to protect them from the weather.

Carrying on boldly in the midst of the partially equipped, temporarily sheltered new equipment, the "cow college" station added its own studio orchestra, on paid salary, to play regularly Friday nights and to intersperse musical pieces between talks on other programs. Original orchestra members were H. E. Alden, director and violinist; Miss Genevieve Riley, pianist; Mr. J. Sierra, who played the clarinet;

Simon Negrito, trombonist; and Professor John C. Overpeck, on the cornet. The studio orchestra kept up to date through the courtesy of eastern music publishers, who supplied the group with the newest sheet music, free of charge. The program for Friday night, December 10, went like this:

Orchestra concert
Overture—"Southern Melodies"
"Bowl of Pansies"
"At Sunset"
"O Sole Mio"
Violin Solo

INTERMISSION

Intermezzo—"Kiki"
Selection—"Carmen"
"Spanish Gypsy Dance"

The Goddard's social entertainments spread to include the newly formed Gamma Sigma fraternity, a group Goddard was particularly interested in. They held a smoker in their home December 6, serving "25¢ cigars and a salad course," as the college paper reported, and the article further revealed the boys "played bridge and (it is rumored, other card games of a somewhat different and possibly more exciting nature)."

CHAPTER XIV

Grand Opening

"His memory is written not in monuments of granite nor buildings of steel, but in the hearts of the students whom he inspired and encouraged."

Preface to the printed program
of the Dedication of Goddard Hall
March 17, 1934

TWO GREAT NATURAL DISASTERS befell America in 1927; a five-minute tornado killed 87 and injured 1500 people in St. Louis in September, and in April the Mississippi Valley flooded, inundating four million acres and drowning several hundred people, from Illinois to the Gulf of Mexico. Herbert Hoover was in charge of relief operations and was the very symbol of efficiency. The Iowa-born "boy from a country village," as he described himself, had a varied career. He was a campus leader at Stanford, entered his chosen field of mining engineering, then came onto the political scene as food administrator during the war, a post which made his name a household word. Later, as Secretary of Commerce, he had dealings with the radio pioneers, including a bit of back talk from Sister Aimee (Aimee Semple McPherson), a travelling evangelist who eventually settled in Los Angeles where she gave spectacular services from her Four Square Gospel, her Angelus Temple, and from her own radio station. When Hoover dared to assign her station a wave length she wired: "You cannot expect the Almighty to abide by your wave length nonsense. When I offer my prayers to Him I must fit into His wave reception."

With this single setback in a successfully performed job, the Quaker-reared Hoover began in 1927 to gather support for the Republican

presidential nomination in 1928, and was nominated on the first ballot at the convention, to the delight of Big Business.

The delight stemmed in part from incumbent Calvin Coolidge's surprise announcement in August: "I do not choose to run for President in 1928." Many, believing all was well with the economic system, and that Coolidge's administration was enlightened government at its best, had assumed he would seek reelection.

On February 23, 1927, the Federal Radio Commission was established by Congress; N.B.C. split into two networks, the "Red" and the "Blue", and C.B.S. was organized in April. Home radio sets were usually operated by house current, rather than batteries, and automobile radios were devised. Radio was really big business.

Goddard couldn't seem to get enough of it. Even with all the plans he was nurturing for KOB, he still sat up late into the nights listening in on his home radio equipment.

The Aggie Military Band made its debut concert on KOB February 26, 1927, then accompanied a vocal quartette on the same evening, performing from the Music Hall studio.

The motor-generator equipment arrived in March, and was put into service.

Earl Kiernan, a charter Radio Club member and highly-skilled engineer who made many creative contributions to the station, left the campus in the spring.

That year Goddard was elected to the Board of Directors of the Association of College and University broadcasting stations. The quiet accrual of his accomplishments was recorded in a biographical sketch in *Professional Engineer* magazine, March, 1927. He was past district president and treasurer of the A.A.E., charter member and past president of the Southwestern Society of Engineers, and a member of many other professional associations. His publications included *Arc Welding* and *A.C. to D.C. Rectifiers for Battery Charging,* both in the *Journal of Electricity, Iron Wire for Transmission Lines,* published in *Electrical World,* and *The Heterodyne Wavemeter,* which appeared in *Wireless Age,* as well as numerous papers presented before professional societies.

Grand Opening

Station KOB was thoroughly imbedded in the NMA&MA campus (even though the umbilical to the electrical engineering labs had been severed), with underground microphone circuits running to the Music Building, where two rooms had been appropriated for use as a studio, to the main college auditorium, to the athletic field and gymnasium, and to Hadley Hall, where a dressing room was used as a microphone equipment control room. Orchestra broadcasts were picked up in Hadley Hall, quartette, chorus and piano recitals from the Music Building studio, and basketball games from the gym. The system was refined later with supplemental equipment such as amplifiers, filters, and portable microphones.

The new motor-generators, operating from their rough shed, furnished four to four and a half kilowatts to the twin cage aerial. Things looked fine.

Then on Sunday, April 3, fire of unknown origin destroyed the Music Hall, consuming radio equipment valued at $2,024.57. Fortunately the equipment was adequately insured, although it took two months to get the claim settlement. Meanwhile, Hadley Hall was used as a studio, and served so well Goddard decided to use the insurance payment to build a transmitter house around the new equipment, as that was a more pressing need than a new studio.

As has been mentioned, the radio station intruded all over the campus, which was not universally appreciated. Further, although Goddard financed the station's construction and operation to a large degree with his personal funds, and although his powers of persuasion amassed many financial and equipment assets, it was true the station placed some burden on the college. Operating utilities were paid by the college; so were student salaries paid to station employees. On the other hand, the availability of student jobs at the station could be considered beneficial to the college, as were its special training facilities, its national reputation and promotional value, and its potential for selling advertising time and eventually supporting itself.

Whatever other faculty members felt about KOB, Dean Goddard was highly respected and held in great affection. His self-defined standard of distinction: "a host of friends who hold him in the highest

esteem," was met to the full on May 4, 1927, when the engineering faculty honored him with a dinner and the gift of a desk set in recognition of his many accomplishments. Testimonials were given at the dinner as follows:

President Harry L. Kent: "Dean Goddard as a Subordinate"
Professor D. B. Jett: "Dean Goddard as a Man"
Professor W. E. Carroon: "Dean Goddard as a Teacher"
Professor Hugh M. Milton, Jr.: "Dean Goddard as a Dean."

Part of Goddard's popularity and respect as an educator lay in his sincere interest in students — all students with which he came in contact. His busy schedule took him to all parts of the country, and he rarely missed a chance to look up former students in each area and take news of them back to the college. His genuine, continuing concern for young people was exemplified in his speech (written out by hand on the backs of class-schedule cards) given at the 1927 Las Cruces Union High School graduation:

"Let us hope these diplomas may be an incentive to continued achievement, an inducement to further and greater efforts, for experience proves that only of such is true success made.

"You will be out on your own now, with restraints of a student removed. But the faculty remain your friends, and hope you reciprocate. Write to us, we want to hear your troubles, your successes, your ideas. And don't be afraid to criticize, for we are honestly trying to improve and only can by your help. You owe it to those that follow.

"Remember, your success is ours, and we will glory in your success."

On May 11 KOB received temporary permission from the newly-formed Federal Radio Commission to operate at 5000 watts; Goddard immediately applied for license to operate with 10,000 watts, the power he had reckoned necessary to give maximum efficiency throughout the state.

Construction began on the new transmitter house in the summer. Solid brick walls went up on the previously-laid foundations and floors, and the building was completed around and over the temporary building sheltering the equipment. Then the temporary building was taken

apart and removed, piece by piece, through the door. Broadcasts continued with only one interruption, when the old connection between aerial and transmitter (which was dangling through a window) was cut over to the new lightning switch and lead-in bushing built into the building. The job took a little longer than expected, and KOB missed one of its regular noon programs.

New transmitter house being constructed around the old Radio Shack, 1927. Later, the wooden structure was removed piece by piece through the door of the new house. Broadcasting service was interrupted only once during the transition.

Then later in the summer, a heavy windstorm interrupted service again. The wind broke the halyards on the east mast and the twin cage flat top antenna fell on to the roof of the Engineering Building, breaking two of the wooden spreaders. A senior student was selected as "monkey" to climb to the top of the 140-foot mast and replace the halyards. It was the student's first experience with rope stirrups, and the climb took two hours, then three hours more for the halyards to be

hoisted up to him, threaded through the pulley, and for him to return safely to the ground. He was a mighty tired boy.

Everything was back in shape and up to date. The new transmitter house had a solid brick partition, eight inches thick, with two double glass windows dividing the transmitter room from the generator room, giving the operator full view of the machines while containing noise and heat from the generators.

To prevent anyone getting into the high-voltage generator room while the machines were in operation, there was only one entrance, from the outside of the building, and that door was kept locked. There were no windows save the double-glass windows in the inside partition. Naturally, the motors were equipped with automatic remote control starters, with push-button control stations and generator rheostats for voltage control located on the transmitter panels. Inside the generator room, a travelling crane ran the length of the room upon rails built into the walls, to make for easy and speedy handling or even replacement of machinery in an emergency.

The transmitter room contained the transmitter and control desk, with ample room for additional equipment. A wall panel box with two long terminal strips on either side provided a quick method of interconnecting various lines by cross connectors to accommodate various conditions. All phone and control circuits terminated in this box. Eight circuits ran to the control desk to provide the operator with complete control of plant operation.

The main power supply went into the generator room through underground cable at 2300 volts. After passing through an oil switch and meters on a large panel board, it went through conduit to the bank of transformers just outside in a fenced-in enclosure. The 220-volt low potential current was then returned to the panel board through large stranded cables to three busses. From the busses, power was fed through branch fuse blocks to the various motor circuits. Lighting was installed in duplicate systems, with one system connected to the transformer bank and the other supplied from the lighting circuits of the Engineering Building. Thus, should trouble arise with the power supply, light

from the second source would be available to assist in locating the problem and making necessary repairs.

With the new transmitter house completed, and the transmitter in operation, Goddard sought a new studio location. Again, the Army training school relics provided the answer. An old barracks, which had been in use for amateur radio work, was reconstructed into a studio and reception room. Experience in the makeshift Music Hall studio indicated need for several changes in the new studio. The old studio had been heavily carpeted and draped to make it as nearly echo-proof as possible, but artists, particularly performers on stringed instruments, complained that their instruments would not vibrate properly in the studio. The interior of the new studio, therefore, was sheathed with 5/8 inch wood sheeting, then covered with panels of ½" celotex. Partitions were erected to divide the interior into a main studio, a reception room, a control room and an entrance hall. The walls were tinted and the windows draped. Interconnecting doors in the partitions had double glass windows in the upper halves to allow a full view without transmitting sound. The central control room served as a sound lock between the studio and entrance hall.

All the studio building wiring was put in conduit, with ample capacity to provide for lighting and electric heat, and surplus to take care of possible expansions. The microphone, telephone and signal circuits were put in with outlet boxes dotted around all walls to allow a wide choice of connections. Telephone, microphone and signal circuits all terminated in a large panel box with terminal strips in the control room. The power circuits were also arranged together with the building entrance switch and meter in another panel box in the control room.

The Baldwin Piano Company gave the college a $1500 specially-built baby grand piano for studio use; chairs, pictures, a long decorative mirror, and tables were "borrowed" from the four corners of the campus to furnish the studio and reception room. A davenport and floor lamp for use beside the piano were donated. Carpets and rugs were purchased, and Ralph Goddard undertook a new craft, sewing the drapes himself!

An R. C. A. loudspeaker and amplifier were placed in the reception room so that the program-in-progress was audible there, or if desired, the operator could switch the sound to a monitor.

The studio ceiling was arched to improve acoustics, the concrete floor was covered with two heavy Wilton rugs, and six pairs of Goddard's triple-heavy curtains were hung over the four studio windows and on the wall, to simulate two more windows. The curtains improved acoustics considerably, by reducing echo, and the sound-insulating efforts also effected remarkable heating efficiency.

On June 15 the Federal Radio Commission assigned KOB to a 760-kilocycle channel with eight other stations, quite a comedown from the earlier nearly-exclusive wavelength assignment. The other stations were:

KFDY — South Dakota State College
KTW — First Presbyterian Church, Seattle
KWSC — Washington State College
WHM — New York City
WJZ — Newark
WQAO — Calvary Baptist Church, Cliffside, New Jersey
WOS — Missouri State Marketing Assoc., Jefferson, Mo.*
KWKH — Shrevesport, Louisiana

Time was to be divided between KOB, KWSC, and KFDY, and power limitations were put on KOB, KMA*, and KWKH. However, KWKH consistently violated its 1000-watt limit, sometimes operating with as much as 10,000 watts. Dean Goddard wrote to KWKH several times, pleading for cooperation, either by sharing time or honoring its power limits, but KWKH was unresponsive. Goddard finally appealed to the Federal Radio Commission. That young agency, however, beset with multiplying stations all wanting exclusive channels, could offer no immediate solution.

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*WOS was soon replaced by KMA, the May Seed Company station in Shenandoah, Iowa, on the 760-kilocycle frequency.

Grand Opening

In the summer of 1927 Wednesday night became a regular program night, and in October KOB added electrola music following the noon news and weather broadcasts. The same month a new personality joined the "Housekeepers' Chat": menus, nutrition discussions, and home management and shopping hints were given by "Aunt Sammy."

Some of KOB's most enthusiastic listeners were the patients and attendants at Ft. Bayard Veteran's Hospital and at William Beaumont Hospital in El Paso, Texas. Ft. Bayard's three hundred patients and two hundred attendants reported they listened faithfully to the station, over loudspeakers or head sets. Beaumont Hospital's 403 beds were equipped with radio headsets, and the hospital also had six loudspeakers.

The Radio Commission met in October and issued general orders to stations KMA, KWKH (Henderson Iron Works and Supply Company), and KOB to resolve their interference difficulties by January 1, 1928, or face a hearing before the Commission.

KWKH still made no effort to cooperate, however, and interference was a serious problem for KOB during the latter part of 1927.

In October Mrs. George W. Frenger replaced Miss Genevieve Riley as studio orchestra pianist.

The 1927-28 college catalogue showed the current radio licensing:

KOB — for broadcast and limited commercial work

5YA — for experimental and test work

5CX — for amateur relay work

5FY
5FX — portable stations

On October 19 Goddard addressed his Rotary Club on the history of the engineering department 1914-27; the engineering enrollment had increased 400% since 1914, attesting to NMA&MA's growth and reputation in engineering, as well as the enlarging demand for members of the profession.

KOB's "income" took many forms. The Agricultural Extension Service's payment for time was augmented by several gifts of equipment, or parts replacement. Westinghouse gave the college a 1200-

watt generator for the D.C. lab, switches and transformers for the A.C. lab, and supplied radio equipment at near-cost prices. Program printing in the area newspapers, a form of promotion, was provided without charge; and in November the El Paso Hotel Hussman proposed to furnish studio orchestra music over KOB through the use of leased lines. The possibility of accepting radio advertising was under consideration. As mentioned previously, most of the furnishings at the KOB studio were donated, as were sheet music, press releases, and Victrola records.

In November the station acquired a ten-kilowatt, 400-volt generator to provide spare equipment in case of breakdown; the new generator would also enable the station to increase its output to 7500 watts.

On November 2, 1927, KOB held a grand opening of their new studio. A special broadcast was given, featuring the first of the 1927-1928 radio auction bridge games (under the auspices of the U. S. Playing Card Company), and El Paso and local talent. Guided tours of the station were given to more than two hundred visitors during the evening.

Following the bridge game, the rest of the program featured local and El Paso talent as follows:

March and chamber music — KOB Orchestra
Vocal Solo — "Estralleta" — Miss Chepa Lucera
Selections by the El Paso Sax Quartette
Cornet Solo — "Oh, Dry Those Tears" — Professor J. C. Overpeck
Vocal Selections — Mrs. A. L. Dean
Piano selections — Mrs. George W. Frenger
Vocal Selections — Mrs. Maria Billones
Reverie — "Dreamy Paradise"—KOB Studio Orchestra

It was a moment of triumph, worthy of all the work that led up to attainment of a truly fine facility; but it was short-lived. Goddard, with his amazing energy and multiple involvements, had other roads to travel. On November 5, 1927 he was elected President of the New Mexico Association for the Advancement of Science in Albuquerque. He remained sponsor of the campus Radio Club, which met early in November to elect Kenneth Tatum as president and Carl Rixey as secretary-treasurer from its twelve members. (The Radio Club con-

tinued as an "amateur" group, participating in American Radio Relay League work, but having drifted into separation from KOB activities.)

Goddard was also involved with building plans for a proposed new library building at the college. He was a great personal friend and unofficial "chief aide" to the college president, Harry L. Kent, which gave him broad exposure to plans for the growth of the college.

With KOB being one of his prime concerns, however, he devoted many hours in the latter part of the year to getting satisfaction over the continuing problems with station KWKH. In comparing the two stations, KOB was now sixth largest of 685 licensed stations in the United States, and its fare included time, weather, market reports, news, and educational programs, as well as Victrola music and live entertainments. Shrevesport's KWKH, on the other hand, broadcast little besides phonograph music, and in defiance of the radio commission's ethic that recorded music should be so identified, KWKH usually left the impression that their music originated in their studio. Further, the American Society of Composers, Authors, and Publishers had sued KWKH in 1927 for broadcasting music before the release dates.

Since the Radio Commission's "general orders to resolve differences" were ineffective, Goddard prepared for battle. Alliance at the local level came from Las Cruces and El Paso newspapers, who published editorials urging KOB's listeners to send letters of commendation to the Federal Radio Commission, or to the station, for use as evidence at the inevitable hearing in Washington.

CHAPTER XV

Decisions

". . . Dean Goddard was an extremely modest man. A wonderful teacher, and, it has been the regret of many electrical engineering students that they were not afforded more personal contact with him in the classroom. His was an administrative task. A task of not only building KOB, but building what he hoped would be the finest engineering school in the southwest. Though he was an electrical engineer, he was equally fair with all engineering departments, and none suffered for any more lack of equipment and funds than the others . . ."

ROBERT W. STEWART
Former Student of Ralph Goddard
(from correspondence with the author)

THE FEDERAL RADIO COMMISSION hearing in January, 1928, gleaned for KOB a temporary new wavelength assignment to be shared with two Westinghouse stations, WBZ and WBZA. On February 29, however, the Commission changed KOB's assigned frequency to 1050 kilocycles, a channel used by seven other stations. This set Goddard's progress back to zero, so he issued another protest, and on March 28 the latest change was rescinded.

A special program was presented by the American Association of Engineers over KOB on Washington's birthday. Speakers were L. M. Lawson, president of the El Paso A.A.E. Chapter and member of the United States-Mexican Boundary Commission; G. P. Serrano, a Mexican representative on the Boundary Commission, and past president of the *Control Nacional de Igenieros de Mexico;* and John G. Barry, who gave the thematic address: "Washington, the Engineer." Spanish and English music performed by El Paso and Juarez artists complemented the talks.

Stock speculation became dominant in the United States, and March saw the start of the Big Bull Market. Business was characterized by installment selling, electric-powered factories, many mergers, chain stores, and "welfare capitalism" — better treatment for employees to avoid unionization.

The Model A Ford was introduced, a more expensive product than the "T", but available in colors and riding easily on balloon tires.

Station WGY in Schnectady, New York began the first program of scheduled television broadcasts on May 22, and on July 30 colored motion pictures were shown for the first time by George Eastman in Rochester.

Radios filled American homes and automobiles with the sounds of W. C. Handy's "Memphis Blues" and "St. Louis Blues," the bands and trumpets of Bix Beiderbecke and Louis Armstrong, and the vocalization of Bessie Smith, "Empress of the Blues." Also growing in popularity was the quieter, sweeter music of Guy Lombardo, Wayne King, Fred Waring, and Rudy Vallee.

1928 was an election year; the Democrats nominated Alfred E. Smith, four-time governor of New York as their candidate against Herbert Hoover. Radio carried many political broadcasts, and for A. E. Smith this new medium of exposure worked against him. He had a harsh, raspy voice, which was not an effective asset. Worse, he pronounced the word: "raddio." Nearly two-thirds of the eligible voting population turned out and gave Hoover 444 electoral votes against Smith's 87.

On February 25, 1928, R. W. Goddard was given commission as Captain in the Signal Corps of the Army of the United States (his earlier commission was as a Reserve Officer). He was forty-one years old. His rusty hair had faded to the color of sand, and was a bit thinner. He was still lean and vigorous with a healthy ruddiness of skin. His long-adopted "professor's garb" of vest-suit had less dash but more elegance than his boyhood outfits, and his dignity gave him the impression of greater stature. There were a few wrinkles around his eyes, but he was a fine figure of a man.

Frances, complementing Ralph's youthfulness, had a civic club and faculty wife schedule nearly approximating his in activity. Further, her floriculture was the envy of desert gardeners, and "motherhood" took on new challenges as two of her four boys were in their teens. With the nearby churches forming a strong nucleus of their friendships, the boys presented few worrisome problems, but each was developing a strongly individual personality and time schedule. Kenneth's lunch-snatching was forgiven (but not forgotten) by Willie Preciado as the two worked side by side in the college Building and Grounds Department, the younger boys took on odd jobs around the house and around their dad's radio station.

All the boys were active in Boy Scouts, as was Dean Goddard, who gave many hours to sponsoring scouting activities.

Raymond Goddard, small, slight, blond and blue-eyed, took up collection and passed hymnals at Sunday School; the same delicate-looking little boy (he grew up to be quite a large, tall man) used to ride his bicycle to El Paso, 45 miles away, to visit his friend Wilfred Penny. (Wilfred Penny would also ride to Mesilla Park to visit Raymond.)

Roy, the youngest, developed an early devotion to science and spent much of his spare time in his basement laboratory at home.

KOB nearly missed a broadcast due to a slight accident caused by young Earl Goddard. Earl's job was to vacuum the KOB studio on Saturdays. On one Saturday afternoon, the announcer met with a dead microphone, and the program was delayed for several minutes of trouble-shooting before it was discovered that Earl's vacuum cleaner had knocked the plug out of the socket.

Frances' father, Joseph Gascoigne, now a widower, came to live with the Goddards during the winters. He helped Ralph add a room to the house, with dormer windows facing the eastern Organ mountains. He was a particularly fine mason and he made himself useful around the house.

* * * * *

Just when KOB, with its new transmitter house and equipment and the new studio complex, had reached the point where Goddard could consider it a shining asset to the college, the old arguments arose as to

whether the station *was* an asset, or a liability. The great improvements of the previous year caused the suspicion to form that funds which might have otherwise bought needed new academic equipment had been diverted to the station. Old resentments over the college-paid student salaries and station utilities revived. So did the long-standing opinion that the station was a personal hobby of Goddard's rather than a necessary college function.

On his side, as always, was the Agricultural division who recognized the public service contribution of the station. Moral support was supplemented with financial assistance to the station by the Federal Government, through its Extension Service of the Department of Agriculture. The State Legislature, in recognition of KOB's public services such as the state highway reports, eventually appropriated some funds to the station; local newspapers and Chambers of Commerce applauded Goddard's efforts; and several El Paso and Las Cruces merchants began to offer handsome fees for radio advertising. There was promise that the station might eventually be at least self-supporting, if not profitable, to the college.

There were plenty of voluntary letters from listeners, too, to give evidence of KOB's value:

London, Ontario, Canada: "Your program last night was the best we have ever heard west of Chicago."

Toledo, Ohio: "It is a pleasure to listen in on Radio Station KOB programs. We enjoy them greatly."

California: "We get your station with great volume. Your programs are fine, and the KOB announcer is the best I have ever heard."

Texas: "We certainly did enjoy your program on February 4. It was the best on the air."

Michigan: "The reception of the game was very good and I especially liked the announcing."

Oregon: "You have some very fine programs."

Connecticut: "Your State College Orchestra was coming in wonderfully Friday night. I enjoyed it very much. I hope they will play again next Friday."

Illinois: "The program was very interesting and entertaining. The reception of it here in Aurora, Illinois, was clear and loud."

(*Chicago*): "Your wonderful program came in fine Wednesday night."

As well as complimentary letters, however, KOB also received much correspondence complaining of poor quality, "fuzzy" music, high noise level, New Mexico static, and many letters even put the blame on KOB when a homemade receiving set went on the blink. Consequently, Goddard's radio modifications were constant; work went on all the time.

Pros and cons were nearly equal, but the weight had to shift. It was decided KOB should be divorced from the college, at least administratively. Perhaps some arrangement could be made with an outside backer on a lease basis, with the station continuing to operate from campus. Or perhaps the station should be sold outright and removed from the college.

While Ralph Goddard would suffer most from the loss of the station, he was the best-informed person to determine and promote KOB's material and intrinsic worth; and best-qualified to assess a prospective buyer's ability to maintain KOB's prominence in broadcasting. Thus, to him fell the burden of disposing of KOB.

Taking comfort from the perspective that radio had been to him more or less a sideline, rather than a hard-pursued lifelong goal, he took the first steps to find a new home for his pet. There were tentative indications of interest, but they usually dwindled down to offers to buy advertising time, and let the college worry about round-the clock management.

It appeared the sale was going to be a long process. So be it. As long as the station was still under his control, Ralph Goddard intended to keep its record bright.

Arrangements were made with the *El Paso Herald-Post* through its leased-wire services, to provide KOB with play-by-play coverage of the 1928 World Series, which the station would re-broadcast, bringing the great sports event to the southwest for the first time. More than

five hundred headsets were distributed to ex-servicemen at Ft. Bayard, New Mexico's Veterans' Hospital, in time for the game.

In El Paso, the event was elaborated by using the "playograph board" on the balcony of Hotel Sheldon to illustrate the games play by play to complement the audio reports.

While Goddard's radio days at his home base were numbered, his reputation kept him in the art; he was a member of the Association of Land Grant Colleges and Universities' standing "Committee to Give Attention to the Radio Problem."

And, ironically, on November 11, 1928, the Federal Radio Commission, in recognition of the "public necessity, interest and convenience", gave KOB a new frequency assignment, 1180 kilocycles, to be used on a shared-time basis with station KEX at Portland, Oregon. Thus each station had benefit of an exclusive and valuable "clear channel." KOB's power allotment was set at 5000 watts, with the possibility of increasing the daytime power to 10,000 watts. Goddard immediately applied to the Commission for the increase to 10,000 watts for both day and night broadcasts.

CHAPTER XVI

Professional Engineer

". . . We have gathered here to dedicate this building in memory of Dean Goddard. You have heard of him as an associate, educator, and citizen. I want to speak of him as a fellow engineer. It was my pleasure and privilege to know him as an active member in the El Paso Chapter of the American Association of Engineers and to talk with him many times about engineering as a life work, to discuss with him its problems and its potentialities. To what and how would he have wished this splendid building dedicated? I believe from my knowledge of Dean Goddard we understand his wishes when we dedicate it to 'good engineering', which includes sincere teaching and responsible citizenship . . ."

JOHN G. BARRY
President, El Paso Chapter
American Association of Engineers
in his address, "Good Engineering"
at the dedication of Goddard Hall
March 17, 1934

THE HOOVER ADMINISTRATION instituted the Agricultural Marketing Act in 1929 to aid and encourage farm cooperatives, but the effort was negated by the event which stamped tragedy across the nation, and ended the Jazz Age—the stock market crash in October.

The year started out well for Ralph Goddard. Loss of the station was still a tenuous threat, but one his immense practicality could subdue in favor of relishing what days would remain.

In March he was elected secretary of the Association of College and University Broadcasting Stations, a national organization active in the promotion of educational broadcasting which cooperated with the Radio Committee of the Land Grant College Association, of which Dean Goddard was also a member.

Professional Engineer

By 1929, there were radios in forty per cent of America's homes, and commercial interests in radio had become so powerful that educational stations needed strong organization to prevent their being relegated to the less desirable broadcasting channels.

KOB, with its "clear-channel" assignment and newly-increased power license for 10,000 watts, had an especially strong position as the most powerful college station in the world, and thirteenth most powerful of any type. Its operation required a seven-man staff: four announcers, two operators, and Dean Goddard, who served (in his own description) "in any position from office boy to manager, including announcer or operator as the need arises." Goddard's secretary, Mrs. Ben Rutz, also devoted a sizeable amount of her time to station business, such as getting out programs, publicity, and answering the many inquiries and acknowledgements from listeners. In addition, the "cow college's" studio orchestra continued to perform, on paid salary.

KOB's staff, 1929. Left to right: Carl Rixey, announcer; Marshall Beck, announcer; Harry Pickett, operator; Mrs. Ben Rutz, secretary; Albert Coldwell, operator; Ralph W. Godard, director; Professor W. E. Carroon, Jr., announcer.

KOB: Goddard's Magic Mast

In 1929 Goddard submitted his graduate thesis to Worcester Polytechnic Institute: *The Development of the Southwest's Broadcasting Station KOB.* This report of his ten years' work in developing a small amateur radio effort to a 10,000-watt station, won for him the degree of Professional Engineer in June. He was one of two advanced Electrical Engineering degree recipients at his alma mater that year.

Goddard went back to Worcester for the graduation activities at Worcester Polytechnic Institute. It wasn't like going "home", for his father had remarried and moved to a farm in South Carolina. His mother lived with Herbert and his wife, and his wife's mother, and numerous cats. 'Bert was greatly settled, with a job in the shipping department at the Warren Leather Works. He and his wife, Elvie, were pillars of the church; Bert was a deacon. Frances' brothers and sisters were all grown, staid people, with two of her brothers, Ted and Arthur, active members of the firm of Shattuck and Gascoigne.

Still, it was a chance to see old friends and briefly recapture the life he had left far behind in both time and space. A chance to be seen in all the changes wrought in him—no longer the high-booted motorcycle-riding tool maker's son, but a widely-known and respected man of dignity and accomplishment. A Professional Engineer.

Then it was all over, and time to go back, back to the heat of a New Mexico summer, and a family-accompanied trip to an IEEE Convention in Mexico City, and to the Panamerican Convention of Engineers in Xochimilco, with a side trip to the San Juan Teotihuacan Pyramids. Then, fall curriculum plans, and a dozen civic and professional projects, and a robust radio station he wasn't going to be able to keep.

As long as he *did* have it, though, he felt compelled to work harder than ever at maintaining quality. He applied to the Federal Radio Commission for permission to double KOB's power—to 20,000 watts, which would keep the station well up in the vanguard of American radio.

With the powerful motor-generators arranged in series as they were, a full 20,000 volts was available from any point in the system. This dangerous arrangement had caused reluctance on the part of all the companies Goddard approached with his original equipment plans,

until Westinghouse finally complied. Goddard, with awareness of the inherent hazards, had designed only one entry into the generator room, which he required be kept locked at all times, and he vigorously and repeatedly impressed caution on each person who would ever have occasion to enter the power room.

As an aid to adjusting the operating parts—a tricky business, since there was just a scant three-foot clearance around the generators—Goddard devised a simple but effective "reach extender": a pencil taped to the end of a yardstick. The stick was kept in the operating room where the meters and switchboard were located, which meant that when the stick was needed, the operator had to take about twenty steps to make the outside-door-and-around-the-building trip to the operating room. However, upon return to the generator room, the stick was already in hand ready for use, and there was no occasion to have to turn one's back on the powerful machines to locate mechanical aid.

* * * * *

Broadcast Advertising magazine put out its first issue in September, 1929, carrying talent- and advertising-agency advertisements and ads for 16″ spot-advertising discs used for recorded ads ("with voices of Broadway stars"). KOB had been eagerly sought as an advertising medium for some while, and Goddard made a last-ditch effort to keep the station on campus by accepting some advertising. It looked like radio advertising was going to be big business; but business was in trouble.

On September 3, 1929, stocks reached their highest prices and two days later dropped sharply. Economist Roger Babson predicted: "Sooner or later a crash is coming, and it may be terrific."

It came October 24, Black Thursday.

For Goddard, who practiced thrift and cash-on-the-line, his personal life changed little. In fact, in December he bought a new car, one of the first six-cylinder Chevrolets.

And in spite of the Crash, Goddard received a "nibble" from a prospective buyer for the radio station. Thus he had his own reason for sharing the nation's cloud of gloom.

CHAPTER XVII

The Silent Station

THE CHRISTMAS HOLIDAYS meant to Ralph Goddard only that he would rearrange his working schedule. He put aside his classwork preparations with the briefest of sighs and rechanneled that energy to two efforts on behalf of KOB: looking for a purchaser and overseeing its continuing operation from the campus.

He drew comfort from the prospect of spending more time at other endeavors, strengthening the cohesiveness of the engineering faculty, taking on more commitments from his many professional associations, spending more time in civic works, getting to know those four bright and individual young men in his home who, only yesterday, it seemed, had been babies, perhaps taking a more active role in church activities, when he was relieved of the burdens of operating KOB.

Pleasant speculation. But the fact remained that he must be the instrument of KOB's relocation, and after two years of analyzing the possibilities he was tired.

Well, there was that proposition from a group in El Paso. He would review it during the holiday vacation, and possibly he could secure some alternate leads as well; holidays or no, he still had some speaking engagements which would keep him in touch with prospects. Meanwhile, while KOB was still under his wing he meant to make its last broadcasts from the campus memorable ones. He had something special in mind for New Year's Eve.

So did Frances. The New Year's Eve party for the older teens at the Episcopal parish house. He'd have to make his radio station pre-

parations well in advance, so he'd be on hand to perform his share of parental duties in setting up the party.

Four days after Christmas he was down at the station, making some adjustments in the generator room when Professor Hugh Milton stopped by. Milton knocked on the glass and Ralph waved and nodded his head toward the outside door. He unlocked the entrance door and Milton met him there.

"Nice Christmas?" Milton asked.

"Sure was," he said absently. The past was past. "Want to give me a hand, Hugh? When I give you the word, I want you to close that main switch—but be extremely careful, Hugh. Use this yardstick to close it with. Now. That's fine, thanks." Goddard gave a last critical glance around the generator room, killed the power, and the men left the closely confining room. Ralph tested the door to be sure it was securely locked.

"All set up for the kids' New Year's Eve party?"

"I think Frances has everything under control," Ralph said. "I'm afraid I haven't been much help in planning the arrangements. I have to go El Paso tomorrow evening to give a safety lecture, and what with the odds and ends here on campus I haven't spent much time playing Father this season."

"You ought to slow down some, Dean. You look mighty tired."

"Yes, well, I'll probably be getting out from under the station pretty soon, and then I can settle down to being an old middle-aged man."

* * * * *

His El Paso lecture covered some of the dangerous oddities an electrical engineer might encounter, such as water seepage or condensation around equipment. As Ralph drove home late that night he could hardly remember what he had talked about. He eased himself into bed, having undressed in the dark so as not to disturb Frances, but the short night was not enough to restore him. He woke at his usual early hour the next morning, from long personal discipline.

After breakfast he, Earl, Raymond, and Roy followed Frances' directions in making do-ahead preparations for the party at the parish

house. Kenneth had already gone to work at the campus building and grounds department. Soon as Frances had her work organized, and the three younger boys resigned to stepping and fetching, Ralph excused himself to complete his New Year's Eve program arrangements at the station.

"I expect Kenneth will ride home with me. I'll probably be up at the college all afternoon. You're going to deliver newspapers today, Earl?"

"Yessir."

"I'll probably see you, too, then. Frances, I'll try to be home on time for supper. I just want to check things over, make sure I won't have to rush off during the party."

He drove to the studio in the new Chevvy, passing very little traffic. Although it was unseasonably warm, it wasn't a pleasant day. The air had a heavy murky quality portending rain.

He exchanged a few pleasantries with Albert Coldwell, his tall young student-operator who had stayed on campus to work during the holidays, and they both felt a bit more cheerful for their encounter.

* * * * *

"I'm not saying for sure, Roger, but Dad may be willing to let me drive the Chevvy home. At least we can sit in it while we wait for him, and I'll show you all the gadgets."

Roger Elser and Kenneth Goddard found the car easily enough, sitting all by itself outside the KOB studio. They stopped inside where the announcer told them Dean Goddard was down at the transmitter house. The threatening weather had given up only a fine drizzle, but it had lasted all through the afternoon. The boys climbed into the protection of the new Chevvy, and frowned at the slow rivulets coursing over the car's fine finish.

It was just past five o'clock. Suddenly the studio door opened. The announcer burst outside, spied the boys in the car and hurried over, uncoated, hunching against the chill drizzle.

"Can you tell me the names of some of the doctors in town?"

"What's wrong?" Roger asked.

Without waiting for a reason, Kenneth supplied two names: Dr. Smith, the Goddard's family doctor, and Dr. McBride. Roger named a few others.

The announcer started back to the studio and the two boys ran after. "What's the matter?" Kenneth asked.

"An accident down at the transmitter house—I've got to telephone for help."

Kenneth and Roger veered and ran the 150 yards to the transmitter house. Dusk had lowered and the continuing drizzle hampered visibility. The boys were almost upon Albert Coldwell before they recognized him. He knelt just outside the door of the generator room, moving back and forth rhythmically, too intent to look up at their running approach. They stopped, moved hesitantly another step, and saw that Albert straddled a prone figure.

Kenneth, an experienced summer life guard, realized Coldwell was performing artificial respiration. But not until he crouched to the muddy earth did he recognize the victim as his own father.

"My—gosh! What happened, Albert?"

"Don't exactly know. Saw a spark—through the generator—room window. Shut down the—equipment. Looked in—the power room—and saw the Dean was injured."

The announcer joined them, with the report that help was on the way. The doctor had directed him to call the El Paso Fire Department, the nearest place a resuscitator was available. The doctor would call a colleague who was nearer the campus, and both would arrive as soon as they could.

Kenneth continued to crouch in the mud, curled over his father and holding his jacket open to shelter his father's face from the rain.

At last one of the doctors arrived, administered an adrenalin shot and began to rub the Dean's wrists, gently edging Kenneth to one side. Coldwell began to tire from his long session at artificial respiration, and Kenneth took his place.

The second doctor arrived and on his heels a small crowd of onlookers, who rallied to help, dispersed in search of lanterns and flashlights and to summon college officials, and reappeared in greater

numbers, so that by the time the resuscitator team arrived from El Paso, an hour's drive away, there was plenty of light and movement to direct them to Dean Goddard.

The firemen took over the job of trying to restore Goddard's breath. Kind hands pulled Kenneth into the circle of spectators, just as his young brother, Earl, who had spied the commotion as he passed by with his newspaper bag, arrived. The boys stood together, and the crowd grew still.

There wasn't a sound beyond the mutterings of the doctors and the resuscitator team as they continued their ministrations, discussed what else they could try, wondered what they were up against. There was no sign of response from Dean Goddard.

About 9:30 that night President Kent, Professor Cunningham, and Charlie Strickland insisted that Kenneth and Earl go home.

"Better go with them, sir," Charlie Strickland said. "I'll bring Dean's car home after a while."

Fifteen minutes later, after five hours of earnest efforts to revive Dean Goddard, he was declared dead.

* * * * *

Goddard's constant awareness of the dangers in the high-voltage room, evidenced by his frequent admonishments to students and colleagues, and the close calls some of his students had had in previous years, as well as his own respect-making experiences as an electric shock victim, make it hard to determine how he could have met with the fatal accident.

There may have been much on his mind, unrelated to whatever task took him into the power room that day. It was the end of a busy day. He was extremely tired, with bone-deep weariness built up over several months' time. And the weather, the slow, day-long drizzle, was unusual.

There was no witness to the accident; hence only theories as to what might have happened. Here is Kenneth Goddard's account:

"Dad was testing the commutators of the generators, just exactly what for, I don't recollect, but apparently this was common practice

when you had some little arcing or a certain amount of brush difficulty. Sometimes you had to push the brushes down a little bit to seat them better.

"The slow drizzle had lasted most of the afternoon. Dad had been walking around the campus in the damp and I'm sure the bottom of his shoes were wet—if not saturated.

"This gave excellent contact to ground on the floor in the generator room. The imprint of his feet was burned into the concrete floor.

"The yardstick was of very white pine wood, quite light and porous, and while it normally stays exceedingly dry in that climate, apparently it absorbed enough moisture to allow the spark to jump right up the stick to Dad's arm. The pencil-yardstick assembly had been used before, and it was in the operating room where the meters and switchboard were located. It's a matter of about twenty steps out the door of the operating room to the generator room, and with the single entry from the outside, of course you would have to go out into the weather to make this traverse. It wasn't raining so hard at the time that you would think the stick could have gotten wet, but apparently it did.

"Later, the doctors intimated his death resulted from his blood being boiled by the shock, and then congealing, after which he just had no chance to live."

KOB went off the air at the moment Coldwell shut down the equipment after seeing the flash from the generator room. The station was silent until January 2, 1930, when Harry L. Kent, president of the college and Goddard's good friend, announced the death of KOB's founder to the radio audience.

CHAPTER XVIII

President Kent's Address

"To KOB AUDIENCE:

"It is with extreme regret and grief that I have to announce to you tonight the death of the creator or builder and the director of KOB, Dean R. W. Goddard . . . Those of you who have listened to KOB cannot understand the loss the College, the Community, and the Engineering world has suffered through the early death of Dean Goddard.

"Trained as an electrical engineer, he early became interested in Radio. He studied his hobby incessantly and with an unusual ability. During the revolution in Mexico fifteen years ago, he began assisting army officers in solving radio problems along the border. His skill and knowledge was recognized as unusual and as a result of this and succeeding service, he was, at the time of his death, a Reserve Captain in the Signal Corps of the U. S. Army.

"It was in these early days that he began the long struggle to develop KOB. . . . Handicapped because of lack of funds and because of problems new to broadcasting in the mountain country of the Southwest, he faced a long struggle. During the years he has been developing KOB, he has never spared time or energy or even his own means to overcome obstacles or to accomplish his purposes. Many of the devices in use in KOB are his own designs or inventions and some of them have been adopted and are in use in many other stations.

"He has developed KOB to a modern station of 10,000 watts and was making changes to increase the power to 20,000 watts within the year.

"He was a firm believer in the future of radio. He had trained many of his students in electrical engineering for radio service. He had studied the scientific problems of broadcasting and made many contributions to the solution of these problems.

"As professor of electrical engineering and Dean of the School of Engineering in the New Mexico College of A. and M. A., he was loved and admired by faculty and students alike. No dean was ever remembered more frequently by former students and associates.

"No engineering instructor was more admired or respected by practicing engineers.

"Dean Goddard was one of the most highly respected, admired and loved of the men of this community. He was active in church and Sunday School work. The father of four boys, he helped with Boy Scout work.

"He had been a member of the local school board and of the Las Cruces Union High School Board since the organization of the High School district. He was the representative of the High School Board in charge of the building of the new High School building.[1] This fine building, modern, well arranged and artistic will stand for many years as a monument of one of his many unselfish services to the great Southwest.

"Dean Goddard was a Rotarian, a Mason, a Knight Templar and a member of the Ballut Abyad Shrine of Albuquerque.

"He had been a member and faculty advisor of Gamma Sigma Fraternity[2] in this College for eight years.

"He was an active member and former officer of the American Association of Engineers and a member of the American Institute of Electrical Engineers. He belonged to a dozen other engineering, scientific and educational organizations and had served on many committees of these organizations.

[1] The building now known as Alameda Junior High School.
[2] Now called Tau Kappa Epsilon.

"He had many inventions and new designs of engineering devices to his credit. He had taken out but few patents for he was unselfish in his work. His reward seemed always to be the reward that comes from accomplishment and achievement.

"He was an inspiring teacher and a born faculty leader.

"He was a cheerful and lovable man. I have worked with him for more than eight years and under most trying conditions at times, yet I have never known him to show the least signs of anger, no matter what the provocation. He was honest and firm in his convictions and courageous in his actions.

"Above all he was kind, a faithful, a lovable and loving friend to all who knew him.

". . . At the time of his death he was professor of electrical engineering, Dean of Engineering, director of the engineering experiment station and director of KOB. He had built a strong engineering school both in physical equipment and reputation of graduates while in charge as Dean.

". . . He is survived by his wife and four children: Kenneth R., a senior in Las Cruces Union High School; Raymond F., a sophomore in Las Cruces Union High School; Earl G. and Roy F., in the grade school at Mesilla Park.

"In addition to the widow and children, he is survived by his parents, a brother, H. H. Goddard of Worcester, Massachusetts, and an uncle, A. N. Goddard, Detroit, Michigan.

"Funeral services will be held at the Methodist Church in Las Cruces at 2:30 P.M. tomorrow afternoon."

CHAPTER XIX

A Truly Distinguished Man

". . . By authority of the Regents of this institution, the celebration of St. Patrick's day centers around the dedication of this building. From the institutions of higher learning of our nation, from the governor of our state, from the alumni of this institution and from industry have come manifold letters commending our action. I therefore, praise your indulgence for a brief interruption of the lighter things of the day to the dedication to Ralph Willis Goddard, Dean of Engineering, Professor of Electrical Engineering, Director of KOB, Director of the Engineering Experiment Station, public benefactor, friend and comrade of this building, whose floors pulsated with his untiring efforts and whose walls will re-echo until eternity the inspiration of his unselfish life . . ."

HUGH M. MILTON, JR.
in his introduction at the dedication of Goddard Hall
March 17, 1934

RALPH WILLIS GODDARD was buried Friday, January 3, 1930 with military honors.

Reverend Charles Martin, student pastor of the college, officiated. Services were held at the First Methodist Church in Las Cruces, and the Aztec Masonic Lodge conducted services at the Masonic Cemetery.

The El Paso Chapter of the American Association of Engineers attended as a group, in tribute to their former district president. They were almost lost in the mass of people who came to bid farewell: college students, faculty, staff, townspeople, out of town friends.

The funeral attendance, one of the largest ever seen in the area, proved that by Dean's own measure—a host of friends—he was a truly distinguished man.

A full page in *Professional Engineer* magazine read:

"In Appreciation

"The American Association of Engineers poignantly regrets the untimely death of R. W. Goddard, Dean of Engineering, New Mexico College of Agriculture and Mechanical Arts, State College. Dean Goddard was a loyal friend of the Association and one of the outstanding leaders in the engineering field in the Southwest. He could ever be depended upon for generous support and hearty cooperation.

"Active as a citizen, an engineer, and a professor, Dean Goddard was loved and respected by the citizenry, his fellow engineers, his students, and his colleagues. The American Association of Engineers mourns the loss of such a valuable member and feels that the engineering profession has been deprived of a great leader.

"American Association of Engineers"

The April 23, 1930 issue of the *Roundup* appeared as the "Dean Goddard Edition," and carried the stories of two more tributes: the State College chapter of the American Association of Engineers, inactive for four years, was revived and organized as the R. W. G. chapter.

Easter Sunday (April 20) being the birthday of the late Dean Goddard, the engineers decorated his grave Sunday morning with a spray of flowers. A delegation was appointed from the R.W.G. chapter to visit the cemetery and pay respect to the memory of the noted radio engineer.

The Las Cruces High School newspaper, *The Union,* said in the January 13, 1930 issue:

"The Las Cruces Union High School is one of the many organizations that is mourning the loss of a very dear friend in R. W. Goddard. Mr. Goddard was a member of the Board of Education for six years, being president for all but three months of the time. The extent of his faithfulness is indicated by his attendance at meetings and other duties in connection with the school. He attended 84 of the 87 meetings held while he was a member of the board. Besides attending these meetings he gave personal attention to the preparation of the plans and specifications for the building which we now occupy. He also

gave careful supervision during the construction. He was a faithful attendant at all extra curricular affairs carried on in the name of the school. The fact that he entered whole-heartedly into all school affairs whether business, professional, or social brought him so close to us that we all learned to love him. Had Mr. Goddard no other memorial than the tangible and intangible factors connected with the high school his life would have been well spent. Heavy is our share of the sorrow caused by the untimely death of this good friend."

Early in 1930 it was suggested that a dormitory be named for Dean Goddard. Alumnus Rock Davis wrote his support of the idea to President Kent on March 23, 1930:

"I just want to come back some day and hear an active Aggie say, 'That is Goddard Hall'," he wrote. "When we heard the news, a feeling of loneliness settled over me and I just can't get rid of it. When I saw the piece in the Round-Up, which mentioned the naming of the new dormitory for him in honor of the work he has expended in behalf of the college, I just had to write you and ask if that could not be done.

"All the words I could write on paper would not tell you why I think it should be done, but he has lived and worked with the gang from the dormitory, made men of them, and sent them on their ways thinking and acting like men . . ."

President Kent answered the letter, saying that the dean's name would probably be given to some building and that his (Kent's) personal preference was to name the engineering building after Goddard.

Almost an entire student generation passed through the college before the decision was made as to the most appropriate tribute. In accordance with Kent's preference, the engineering building, where Goddard had taught and where he kept his office, and whose tall tower had supported his various radio aerials, was to bear his name.

President Harry L. Kent gave his address: "Goddard, the Educator" at the dedication ceremony, illuminating not only the qualities which earned his academic respect, but also those qualities which endeared Goddard to him as his great friend: "Ralph Goddard left a lasting influence and an ineffaceable impression as an educator during his

active life in New Mexico. The most positive and forceful influence made itself felt through the training and the high professional ideals which he instilled into the minds of the group of young men who graduated from the course in engineering under Dean Goddard's wise and sympathetic influence, both as teacher and administrator.

"He was wise in counsel, sound in his educational views, had a high respect for honesty in education, and therefore exerted a profound and constructive influence upon all of the academic work of the college which he served so long and so faithfully. True, the Engineering School received his first and most serious consideration. But his interests and his desire for improvement of the work of the college extended beyond the Engineering School and he was quite as zealous and quite as ambitious for a high standard of work in the other schools as he was for the work in engineering.

"He was ambitious for a better and more attractive physical plant and he gave of his time, thought, and energy in helping to formulate plans for the development of the campus and its buildings and grounds. His experience and ability as a builder made him an especially able and helpful adviser in this latter field.

"For nearly ten years it was my privilege and pleasure to counsel and plan with him for the betterment of the work of the Agricultural College. The thing which stood out most prominently in this long association was the innate honesty of the man. I mean honesty in connection with educational ideals and standards. He had no sympathy with easy courses, for shallow training. He wanted the students who graduated from this institution to be thoroughly and fundamentally trained. He was exceedingly jealous of the reputation that our graduates might make in the future. He insisted that there be no excuses for poor work, that unless men did their work well and soundly, and unless during their four years here they developed a proper professional and scientific attitude, they were not to be looked upon as desirable graduates of the institution.

"The axiom which he repeated to me most frequently was, 'There is no such thing as standing still—we either go forward or backward —our courses must be better next year or they will of necessity become

poorer.' I think that illustrates the spirit of the man. As an educator he was ambitious that whatever was done should be done well and that what was good for one year was not good enough for the next. Therefore his influence in faculty councils was the constant stimulation for better and more up to date work. He kept in touch with the developments and advancements in his own professional work and in the general scientific field. He had many and varied contacts and therefore as an educator he was progressive and kept up to date.

"His was a fine character, a noble character. High ideals of honesty and integrity in private life, professional life and general business contacts dominated his every action and were an inspiration to the students who came into contact with him. I have no doubt but that as an educator influencing graduates in engineering, Ralph Goddard's influence was felt quite as much in the field of character formation and development as in the field of strictly professional training.

"His was a lovable character; a fine friend and associate; wise, frank; honest in counsel; loyal in his support; enthusiastic and energetic in his actions; sound in his thinking; sympathetic in his contacts with students and faculty; ambitious for the institution which he served, for the community and for the state, zealous in his endeavors to attain high professional standards in the school and on the part of its graduates. Ralph Goddard made a noble and lasting contribution as an educator not alone in this college, and not alone in the state. That influence is felt not only through his own activity but through the activities of the many students who went through college under his guidance, graduated with his blessing, and had learned to respect and admire his high ideals and will strive always to put those high ideals into practice in whatever place or in whatever capacity they may be called upon to serve.

"It is most gratifying to us who served with him; who admired him; who loved him; to know that today in dedicating the Engineering Building which he helped to build and which houses the school he worked so long to develop; we are helping to leave a lasting monument as a tribute to Ralph Goddard, the man, and to Dean Goddard, the educator."

The Johnson Years

CHAPTER XX

Chaos on Campus and the Advent of George Johnson

"College authorities feel that the time is soon coming when a large state owned broadcasting station will be a tremendous advantage to New Mexico. It was for this reason that the regents turned down all sale or lease propositions and decided to keep control of all time available."

PROFESSOR W. E. CARROON
in The Roundup, November 5, 1930

HARRY PICKETT was hired as station manager for the balance of the school year, and Professor W. Evan Carroon became station director. A 7500-volt generator was installed August 29, 1930, and the new license authorizing the station to operate at 20,000 watts came through, laying the way for Ralph's last goal for KOB.

The goal was never accomplished, however, without Goddard's strong personal drive to oversee the station's progress. Financial problems were the most critical pinch from the administration's point of view. The Board of Regents met September 8 and decided to keep the station and to sell advertising time. The next month arrangements were made between the college and the El Paso *Herald-Post* to allow the Post to broadcast over KOB by remote control seven hours daily. Texas air-channel allotments were filled, and neither of the El Paso stations, KTSM nor WDAH, could secure authority to enlarge their facilities, so the arrangement with KOB gave El Paso its largest radio outlet. This also gave KOB quasi-commercial status, although the college ownership and continuing college broadcasts (five hours daily) kept KOB's license as an "educational station."

The *Post* had no part in management of the station, but bought time from the college and began broadcasting from an El Paso studio over a private line between the station and El Paso, on January 31, 1931. Thus the college gained dual benefits of more varied programming with El Paso's talent, and increased commercial revenue.

G. S. Northcutt was in charge of the El Paso studio, and Earl Gregory was the El Paso announcer.

Professor Carroon left the college the following year, and direction of the station was taken over by Dr. James T. Rood, who had replaced Goddard as dean of the engineering school.

However, KOB was too large an operation, with its satellite studio in El Paso, for part-time administration by the college. Besides the financial woes, technical problems abounded. The inexperienced radio crew would turn full power onto the tubes, without warming them at lower voltage first, and within eighteen months blew up four $200 tubes. In an effort to aim a directional signal at El Paso, an ineffective antenna was put up to the south of the Engineering Building and the valley winds gained the upper hand in the historic battle. Transmission was very poor. The Federal Radio Commission began to send off-frequency reports and complaints that the station was not modulating, was dangerous to operate, and was not operating at its assigned 20,000 watts power.

The Albuquerque *Journal* offered a scheme to save the station for New Mexico, and in the fall of 1931, plans were made to transfer the station to Albuquerque, a good central location, where KOB could more efficiently serve the state than from the border college. Application for permission to relocate was made to the Federal Radio Commission and the El Paso studio was closed down December 7, 1931. The college continued to broadcast from campus until March, 1932, when F.R.C. permission to move the station was granted. One of the last broadcasts from the college included this speech by the college's legendary alumnus, W. A. (Bill) Sutherland:

Farewell to KOB

"It is with sadness that I come today to make this last talk over KOB. As an alumnus, and later a member of the faculty and for 35

years a lover of this college, I prize greatly all of its members and feel that KOB has come to be an important part of the old school of our affections. I want to try to bring a picture to you of the college as it was 35 years ago, when I first came to the campus, and then compare this with the present.

"When I came here in February 1897 and saw this campus first there was nothing except one two-story yellow brick building, which I swear would have taken first prize for ugliness in any architectural competition that could ever be imagined; also an adobe one-story building and a painted lumber shack. And these three conglomerate examples of hideousness were set down on the side of a sandy, sagebrush, greasewood hill, upon which nothing had been planted either for decorative or useful purposes since God Almighty decided ten million years ago a campus like that was good enough for rattlesnakes, horned toads, lizards, and—Aggies. These three buildings; that desert campus, plus a few God-chosen men and women, God bless them, together with a hundred and a half roughnecks from the mountains and plains of the Southwest, made up the pretentiously named New Mexico State College of Agriculture and Mechanic Arts. Then along came Professor Foster, and Oscar Snow and Theron Bennett, and later still our own Dr. Kent and Dean Goddard, and other, oh, I can't name all those who troop past my tear dimmed eyes as I think back over those who nourished and cherished and recreated into a vision of loveliness and beauty and earnest service that which our dear Alma Mater has become. And tomorrow is the last day on this most beautiful campus of the Southwest for KOB. Tomorrow KOB signs off for the last time on this campus that we love so well. But like others who have gone from there, as we regretfully send them far to fields of greater usefulness, we can only say, goodbye, and may you bring greater happiness and well-being to people of our beloved state and country. While KOB will still remain the property of the College and undoubtedly serve and foster its welfare it will never be just the same; it is like a friend away, cherished it may be, but distant ever; so we can only say, good-bye, KOB, good-bye, from the alumni."

The Albuquerque *Journal* assumed management of the station, with the following arrangement as outlined by H. B. Henning, the *Journal's* representative:

The *Journal* states that radio station KOB is owned entirely by the New Mexico State College. The arrangements entered into for its removal to Albuquerque affect in no way the ownership of the station. Any betterments that the *Journal* may add will also become the property of the college . . .

Station KOB for a number of years has been a drain upon the financial resources of State College. In order to keep the station in operation it would have been necessary to use funds in such a way as to deprive educational departments of actual necessities. Because of this lack of funds and also the more rigid enforcement of radio laws, rules and regulations, it became apparent that something would have to be done to relieve the college of the financial burden of conducting the station, to protect the KOB license from forfeiture.

The *Journal* felt that someone should see to it that this very valuable station should not be lost from New Mexico. The *Journal* conferred with the present board of regents a number of times and the result was an arrangement whereby the station could be moved to a central location in the state where it could serve a larger number of people, and so that State College could be relieved of all financial burden in connection with the operation of the station, and so that the college could participate in any profits that might result from the change.

Station KOB is and shall remain the property of the college; while the *Journal* has agreed to undertake the removal of the station, the erection of a modern antenna equipment, and to maintain its operation without cost to the college. In the event of any profits they will be divided equally between the *Journal* and the college.

After the application to remove the station to Albuquerque had been submitted to the Federal Radio Commission, authority was granted, upon the condition that the equipment be put in condition that would comply with the Federal Radio Commission's rules and regulations, before it could be moved.

About the time the application for removal had been filed, station KOY, of Phoenix, Arizona, applied for the facilities of KOB. This action meant it would be necessary for the College to immediately put KOB in proper condition to meet federal regulations. Otherwise the Arizona people probably would have obtained KOB for that state. The college was without funds for this purpose and the *Journal* agreed to modify the original arrangement so that steps could be taken to preserve KOB's license for the College and our state. This was accomplished by the *Journal's* participation financially in the rebuilding of the station and securing the employment of a competent radio engineer whose qualifications were known and acceptable to the Federal Radio Commission. After a thorough examination of the apparatus had been made by competent radio engineers it became known both to the college and to the *Journal* that the present transmitter, without an enormous expenditure of money, could never be

made to comply with the present license requirements issued by the Federal Radio Commission, but with a limited expenditure of money under competent technical supervision, the transmitter could be made to conform to the Federal Radio Commission's requirements by modifying the license, yet preserving sufficient power, 10,000 watts, to maintain a clear channel.

The "competent radio engineer whose qualifications were known and acceptable to the Federal Radio Commission" was twenty-six-year old George S. Johnson, a tall, lean, boyish fellow with a broad,

George S. Johnson—40 Years of Service to KOB.

easy grin and clear blue eyes. FRC-approved or not, his mother had her doubts that he would make the proper impression at his new job.

"Just how big is this station you're going to work at, George?" she asked.

George pursed his lips and considered how he could explain the "size" of a radio station to his mother, a sculptress. "It's nothing like the 300,000-watt Navy transmitter I tested at General Electric," he said. "But it's quite large for a college station. It's about like KOA here in Denver."

"And you're going to be in charge of it?"

"In charge of the engineering end. Mr. Pepperday wants me to report on whether it's in good enough shape to make it worthwhile to move it up to Albuquerque, and if I decide it is, then I'll have to get all the equipment in working order and handle the transportation to Albuquerque."

"I don't know, George. I don't think you look *old* enough to be in charge of a radio station."

George shrugged and resumed his packing. But when his mother bundled up and left the house, George went to the mirror. He had an engineering degree from the University of Colorado, and he'd had some good, responsible experience in Schenectady at General Electric, working on RCA-photophone sound film appartus and on the world's largest radio transmitter now used by the Navy in the Hawaiian region —but he did *look* a little green. Perhaps if he grew a mustache . . .

"Try these, George," Mrs. Johnson, rosy-cheeked from the crisp spring Denver air, handed him a pair of dark-rimmed spectacles. He put them on. The lenses were of clear glass, but they did make him look a bit more mature.

* * * * *

George Johnson, sporting a fine fuzz on his upper lip, folded the cumbersome glasses and tucked them into his breast pocket as he sat down across the desk from KOB's newest director at State College, Dean Rood.

"I understand you've gotten some reports from the Federal Radio Commission, off-frequency charges and so forth."

"Why, yes," said the elegant, old-fashioned dean. "We have, indeed." He pushed back from his desk so he could open his center drawer, and he handed out a thick sheaf of papers. George groaned inwardly, and his vision of "running" a station on his own began to dissolve.

Later, as he inspected the transmitter and generators, his despair deepened. The haphazard maintenance of the last months had taken its toll.

But T. M. Pepperday, owner of the Albuquerque *Journal,* was spared the depths of George's disappointment. Johnson sent him an enthusiastic report that "it will take a sizeable investment to get the station up to FRC specifications, but I believe it will be a fine asset for you and for the state. I recommend that you proceed with your plans."

Johnson spent six months at State College, rebuilding and testing equipment and making inventory of the odds and ends Dean Goddard had collected for the KOB stockpile. There were stacks of tin plate, which Johnson turned into new condensers, surplus military radio parts, Goddard-built testing equipment, and five panels of 30 x 30 x ½-inch bakelite. Johnson also found a folder of correspondence regarding the bakelite, a testament to Goddard's impeccable reputation for honesty.

Goddard had ordered the bakelite from Navy surplus, under the illusion that the price was $1 per *panel.* He had already cut into the first panel when the Navy's bill arrived, itemizing the charge at $1 per *square inch.* Goddard was stunned. He wrote back, confessing his error and his horror, and pleading poverty, which was the actual state of the land-grant college's "radio budget." After several interchanges, the Navy agreed to let him keep the bakelite at $1 per panel.

Among the old correspondence files which George Johnson inspected, he also found a letter from Ken Hance of the National Battery Company, offering to buy the station. The college, hoping to keep the station within the state, had turned down the offer. George later had reason to remember that letter.

CHAPTER XXI

Rescue in Spite of the Governor and the FRC

"As you know, I am rather proud of the fact that the Journal Company has been able to carry on the operation of Radio Station KOB through the severest period of the present depression. I believe our part in this undertaking has materially assisted in maintaining these facilities. I do not expect, on behalf of my Company, any reward for this undertaking, except the opportunity to continue to operate the station on a high-class basis, free from political entanglements and the opportunity of having the earnings of the Station return our investment to us while at the same time return the expenditures State College has made in creating and maintaining this Station until we became engaged in it."

T. M. PEPPERDAY
Owner of the Albuquerque Journal
in a letter to his attorney
M. C. Mechem, in advance of a
legislative hearing concerning KOB.
February 19, 1935

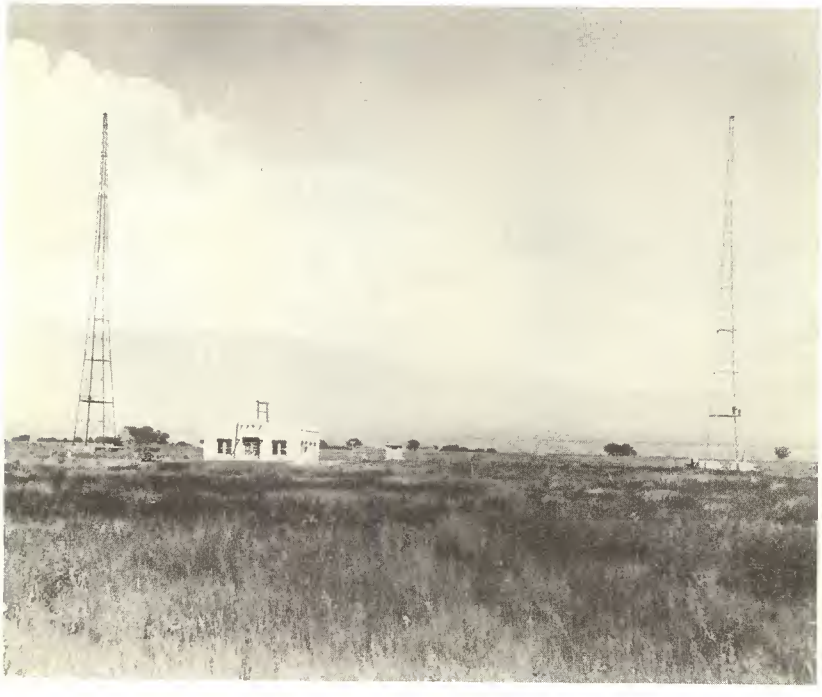
GEORGE JOHNSON hired four young men at the College to help him move the station to Albuquerque and to help get the station in operation in that city. He called the Highway Department to ask for trucks to move the massive equipment; the trucks arrived, but were too small to handle the load. Private vehicles were hired, and the station was moved in September, 1932.

When Johnson and his crew reassembled the station, they incorporated many locked-in safety devices and asked that the FRC license be modified back to the 10,000-watt power allotment. The four men, William Heitman, a State College EE graduate from Hagerman who

had three years' experience as an operator at KOB, Kastler Taylor, a Las Crucen and a mechanical engineering graduate of NMA&MA, whose previous experience was as chief engineer at El Paso Foundry and Machine Company; Howard Isaacs, a State College student; and the youngest crew member, 18-year-old Robert Bonney, a "ham" (W5AU) in his home town of Raton, New Mexico who had worked as a KOB station operator during his first year at State College, were eager to get KOB back on the air. At one time Johnson and his crew worked sixty hours with only nine hours' sleep in overcoming technical obstacles.

At last they were ready for the FRC installation inspection.

The inspector for the Western States Section, Harold A. LaFount from Salt Lake City, didn't prolong the suspense. He congratulated Johnson on his installation, with many compliments for the safety



features, which went far beyond the FRC requirements of the day.

Then there followed a three-week period of test broadcasting between the hours of 1 and 6 a.m., the hours set aside for that purpose by the FRC. The tests demonstrated the signal strength, tone quality, and general effectiveness of the station, and reaped thousands of letters and telegrams from all parts of North America. A Sunday morning orchestra broadcast by Johnny Floyd and his Florida Crackers brought response from 42 of the 48 states, three Canadian provinces, two Mexican states, and from Alaska, all testifying that reception was satisfactory.

The transmitter was set up in Alameda, 8½ miles north of Albuquerque, on four acres of land east of Highway No. 85. Two new towers set in many tons of reinforced concrete stood 208 feet high, and were considered to be the highest structures in the state. Telephone lines were constructed to connect the transmitter with the basement of the El Fidel Hotel, where offices and a waiting room, and ensemble, solo, and transcription studios were located.

The station continued to broadcast on the 1180 kc clear channel from 4 to 9 p.m., sharing time with the Northwestern Broadcasting Company's NBC station KEX, in Portland, Oregon.

Howard Isaacs returned to his studies at State College; Bonney and Heitman continued in Albuquerque as transmitter operators and Taylor remained as control panel operator at the studio. Howard Ray was employed as studio director, Frank Owens became music director, and George Johnson took on duties as chief engineer. J. C. McGregor became the first local news announcer at the Albuquerque station.

Official broadcasting began from Albuquerque on October 5, 1932. Governor Arthur Seligman delivered the dedicatory address: "It is one of the happiest of my official duties as governor of your state to participate in the rededication of KOB — New Mexico's voice of the air — and to extend to you and our neighbors and friends in other states a cordial welcome as members of that great unseen audience to which this masterpiece of man's inventive genius brings entertainment and enlightment . . .

"New Mexico is quick to adapt to the new, but it is slow to relinquish the old. And so it is that within fifty miles of this world-reaching radio station there are in the more secluded areas people who still hold to the customs, the mannerisms, and in fact, the speech of the followers of Coronado who came into this country three centuries ago. In contrast, New Mexico has her modern cities with every evidence of progress and scientific achievement that is known in the great metropolitan centers of the east.

"That we are able tonight to rededicate to service KOB should be a matter of deep gratification for every citizen of New Mexico. The other speakers this evening have told you something of the history of this station, something of the sacrifices made and the hardships encountered by the late Dean Goddard of New Mexico State College to bring it into being and to perpetuate it. KOB, I feel, should always be regarded as a monument to his memory."

Other speakers included Dr. Harry L. Kent, Gerson Gustorf, a member of the Board of Regents, and H. B. Henning of the *Journal's* sales department.

Operating the station was an expensive proposition. The contracts entered into by the *Journal* and the College gave the *Journal* the right to return the station to the College, and in November, 1933, the *Journal* exercised that right. However, the College asked the *Journal* to continue operation of the station because the College could not afford to resume broadcasting. A new contract, dated September 18, 1934, was drawn, and the *Journal* maintained management of the station in Albuquerque.

In early 1935, KOB became the political "cause" of Governor Clyde Tingley. T. M. Pepperday, the owner of the Albuquerque *Journal,* had been critical of Tingley in his newspaper pages, and Tingley found a means of counterattack; he also considered the value of state ownership of the station for political use.

Tingley called together a legislative committee to conduct a hearing with the State College Regents. Pepperday was represented by M. C. Mechem of Santa Fe, for Pepperday felt it would not be ethical for him to be present while the Legislative Committee and the Governor

interrogated the Board of Regents about their dealings with him. He felt the Board should be free to express themselves, although he gave his assurance that he *would* appear personally if requested to do so. Pepperday's letter of instructions to Mechem read in part:

". . . On two different occasions I have been asked to take over title to Radio Station KOB by authorized representatives of the Board of Regents, the object being to relieve the College of any further hazards of the expenditures of money in maintaining the station. I declined . . . because I felt that these facilities should belong to the people of New Mexico through the agency of State College."

The original lease agreement between the Board of Regents and the Journal Publishing Company was drawn September 11, 1931, and almost all covenants agreed to by the two parties were contingent upon the ability of the College to secure FRC permission to move KOB to the Albuquerque location. The College was unable to secure this permission since the radio equipment did not meet the requirements of the license issued to the station (for 20,000-watt operation). Because of this, the original contract was modified on December 10, 1931. The September contract called for a $25,000 bond to be posted by the *Journal,* but this requirement was dropped under the modified contract. The *Journal* did give $5000 to the college, under very definite conditions, with the December supplementary agreement.

Judge R. L. Young presided over the Board of Regents at the time the original contracts were drawn, and because the College could give the *Journal* no assurance the station could be satisfactorily rebuilt, the *Journal* declined to post the $25,000 bond. No further demand for this bond was ever made known to the *Journal.*

When the *Journal* tried to return the station to the College in November, 1933, the Board of Regents met with Governor Hockenhull, and various suggestions were made as to how the station could be continued and the money raised to pay the operating losses. The *Journal* had spent $70,000 to move and rebuild the station, but at the College's plea, Pepperday agreed to hang on a while longer. The legal agreement of September 18, 1934 was in effect when Tingley's campaign began.

Tingley was sadly uninformed. The only contract he knew anything about was the original one between the *Journal* and the College back in September, 1931, and that contract had been essentially voided by subsequent agreements. Tingley publicly announced he would require the *Journal* to post the $25,000 bond and to pay a yearly rental of $5000 if the *Journal* retained the station.

At the Santa Fe hearing, however, the Governor discovered that the original contract had been superseded, and that his foot was in his mouth. He immediately charged that the matter had been confused by the writing of "twelve or fifteen contracts." The *Journal* challenged him to prove his statement:

"Three instruments in writing were executed between the Journal Publishing Company and the board of regents of the college. The first was dated September 12, 1931 . . . a modified contract was executed December 10, 1931, with a memorandum agreement dated April 8, 1932, and we entered into a new contract with the College as of September 18, 1934. This is the contract now in existence and under which my company is operating the station.

"If Tingley can produce any other contracts beside those bearing the dates mentioned in this statement and duly executed by and bearing the authentic signatures of the officers of the Journal Publishing Company between my company and the Agricultural College officials, The Journal Publishing Company will donate $5000 to any charity or charities . . ."

The *Journal's* article also included some unkind references to Tingley's past political performances, and evoked the following response from Tingley:

"My only interest in KOB is to see that State College is reimbursed for the money out of which it has been chiseled by T. M. Pepperday and the Journal Publishing Company . . .

"The whole situation in a nutshell is that Mr. Pepperday owes State College upwards of $10,000. This honest debt he is attempting to squirm from under. The method he has used has been the drawing of numerous contracts and agreements. The only purpose of these agreements has been to evade payment of his just debt to the College.

"The record shows that the late Judge R. L. Young attempted to collect this money from Mr. Pepperday. Governors Seligman and Hockenhull also made unsuccessful attempt at collection. If it is possible under law I am going to collect that money.

"This morning Mr. Pepperday offers to give a large sum of money to charity if it can be proved that there were 15 contracts drawn.

"A wager of that kind would necessitate another agreement between Mr. Pepperday and myself. When it comes to drawing agreements I am frank to admit I feel myself no match for Mr. Pepperday. The only way I would feel safe in doing business with Mr. Pepperday would be for him to bring in $5000 in cash and lay it on my desk."

Which inspired the *Journal's* editorial reply:

"THE BULL RUNS IN CIRCLES

"Governor Tingley backs away from the *Journal's* challenge. He tacitly admits that his statement of the existence of fifteen contracts on KOB between the Journal Publishing Company and the Agricultural College is false.

"Instead of accepting the challenge, Tingley asks that *The Journal* lay $5000 on his desk. In view of the Tingley record in the free and easy handling of other people's money, *The Journal* respectfully declines . . .

"El Toro on the loose in the public business is beginning to run in circles. Possibly the resultant wreckage may thus be somewhat limited."

The feud went on. Tingley hired a special investigator from Wisconsin, Mr. H. A. Engel, to look into the costs and possible benefits of state-ownership of KOB.

Engel reported the station would cost approximately $40,000 a year to operate, assuming space, building, heat, light, etc. would be freely given by the city where the station might be located. Engel recommended the operating funds should come from a legislative appropriation.

A subsequent hearing (February 20, 1936) brought several truths home to Tingley, at last. Dr. H. L. Kent, president of State College,

testified that by June, 1932, the station had put the college in the red about $40,000. "It was to end this drain on the college treasury and, at the same time, keep in force the license of the station, that the contract was entered into with the *Journal,*" Dr. Kent said. Members of the College Board of Regents corroborated his statements.

Kent also explained there were some suits pending before the Federal Radio Commission which endangered the station's license, but the college knew nothing about those and the *Journal* had defended the actions by sending counsel to Washington. Kent further testified that the station did not even have a regular form license until after the *Journal* had invested considerable money in station improvements and in fighting the legal attacks on KOB, brought by other stations who were seeking all or part of the time alloted on KOB's wave length.

Governor Tingley, not quite persuaded, asked about the $1000 which State College was asked to provide for defending the license before the FRC.

"As a matter of fact," Dr. Kent said, "the College never paid any of that expense at all. It was allowed on what the *Journal* owed the College."

Tingley had also charged that the *Journal* owed an outstanding bill to the Highway Department for moving the station to Albuquerque. Testimony showed that the highway trucks went to do the moving, but were not large enough, so privately-owned vehicles were rented (and paid) by the *Journal.*

The *Journal's* attorney, M. C. Mechem, explained: "In regard to the legal defense of KOB, there were half a dozen stations making attacks on the KOB license. Some of them antedated the removal of the station to Albuquerque and the *Journal* had to defend them before the title to the license could be cleared for the College. The *Journal* did not get the license, as that is not transferable, so the College still holds it although the *Journal* defended it in five attacks and there are still two pending which will have to be defended. Pepperday took the position that he did not get what he had bargained for — a clear, free, unquestioned license and a station that met the Federal Radio Commission requirement for that license."

Tingley grumbled, "If you had stuck to that first original contract you would have been all right. That bird Pepperday slickered you fellows."

The college board members mildly asserted their opinion that they hadn't been "slickered" at all, but that KOB probably would have been out of existence long ago if the *Journal* had not assumed the operation and stood the losses.

Tingley's final challenge was: "Well, what does Pepperday want to keep it for?"

Mechem explained that Pepperday thought that as business conditions improved the station could be put on a national hookup and derive added income so that both the *Journal* and the College could recoup some of their losses. Pepperday had, in fact, approached the National Broadcasting Company about the possibility of joining the network, but with the depression still going on, NBC was not interested in adding KOB as an affiliate.

R. P. Porter, president of the college board, asked: "If we don't let the *Journal* continue to operate it, what are we going to do with the station? We have no money to lose and cannot take the station back unless the legislature will provide the money."

Dr. Kent and other board members also pointed out that no one else had wanted the station and that no other offers had been made for it, except small ones that would have taken the station out of the state and would have required the college to relinquish title to the station and the license.

The Federal Radio Commission would not allow transfer of KOB's license to *The Journal,* but Pepperday wanted to own the station. He formed the Albuquerque Broadcasting Company in 1936, and the FRC did allow the college to sell the station and its license to Pepperday's new company. Pepperday owned 100% of the stock. He made an agreement with the College to continue carrying State College programs without charge, in perpetuity, which the College, the Governor, the attorney general, and other officials found acceptable.

Soon as he became actual owner of the station, Pepperday began to make expansions. He moved the station to new studios at Fifth and

Gold in Albuquerque and invested $15,000 in station improvements over and above the $25,000 purchase price he paid to the college.

T. M. ("Tom") Pepperday was a tiny, hard, shrewd, mysterious man. Partially bald, graying, few in his employ or in his city knew what he looked like. He kept an office up over the KOB studios with only his personal secretary, Gertrude Brooks, and his bookkeeper-receptionist for company. He had a private entrance and elevator to his office, and there were many KOB employees who never saw the man. He was neither a sociable nor a popular man, but within his "ivory tower" he showed a fondness for his two lady officemates: they called him "Mr. Pep" and considered him a very fine man. He had a definite soft spot—created jobs that were never competently filled by recipients of his sympathy, other personal good works that were as unknown to the public as was the man himself.

His taking-over of KOB for the first four years, too, was an act of altruism. But eventually the station began to operate in the black. Lacking a network affiliation, however, the programming was somewhat haphazard. The station drew on NBC, ABC and Transradio for news. The University of New Mexico's dramatic talent put on "The Little Theatre of the Air" using syndicated scripts which cost the station $3-$4 a show plus 10¢ a copy for the scripts. The actors played multiple roles and were required to go to the station for two rehearsals ahead of the Wednesday performance. Their salary for this effort was 50¢ a program, the standard fee paid to live talent. Actors included Edwin Snapp, Jimmy O'Connor and his wife, Kathryn Kennedy O'Connor, and J. C. McGregor. One of their continuing serials was "The Scarem Curse," set in Egypt with Edwin Snapp as a heavily-accented German villain. George Johnson, his broad grin scarcely concealed under a flourishing mustache, often stole the show with his "mugging" while he stood behind the cast with his sound-effects props.

Johnny Floyd and his Florida Crackers provided live orchestra music; occasionally, the programming department hit a "slump," however, and the search was on for phonograph music. George Johnson, against Pepperday's order to "leave all the college's music behind," came up with a stack of old college records which just barely filled half an hour with Hawaiian music.

Next time George went to Denver to see his family, he browsed in a music shop and found a bargain table of phonograph records marked "2 for 5¢." He called the proprietor over and asked if there were other records available at that price besides the ones on display.

"Sure, we've got a lot of them," the proprietor told him.

"Will you pick out one of every selection you have and send them to me down in Albuquerque?" George asked.

The man was greatly titillated to see that his bargains were going to New Mexico's radio station, but was glad to comply with the large order.

Johnson also felt very pleased with the transaction. When the 500 records arrived in Albuquerque, however, the freight bill surpassed what he had paid to buy the records. But the programming gap was filled.

CHAPTER XXII

KOB Goes Big Time

"The National Broadcasting Company, although a commercial organization, performs a constant public service. KOB, since its inception, has performed a great public service in New Mexico. Under the network arrangement I believe we can expect that service to continue, and to broaden."

GOVERNOR CLYDE TINGLEY
on the occasion of KOB joining the NBC network
June 15, 1937

T. M. PEPPERDAY put KOB on its financial feet, with thanks to George Johnson's economic forethoughts and to the local talent who were eager enough to be on the air to work for 50¢ a show. In 1937 Pepperday made two major moves forward: he installed a new RCA transmitter and he joined the National Broadcasting Company at last.

The RCA 10,000 watt transmitter was the second one of its type and power built by RCA; the first was installed by NBC, New York. Johnson persuaded Pepperday he could get by with only a part of the transmitter by using some engineering ingenuity, and RCA agreed to sell the station just the parts they wanted. Thus KOB's tradition of using materials at hand to achieve progressive results was maintained, and the new transmitter should properly be called an "RCA-Johnson" model.

The new equipment gave radio coverage to nineteen counties (31,190 radio families) where ranching, farming, coal, copper, and silver mining were the industrial interests.

Transradio, UP, AP, and International News Service were all used at that time.

The transmitter was installed in April and dedicated June 14, 1937, the eve of KOB's affiliation with NBC. KOB still operated on the 1180 kc clear channel and broadcasting hours were expanded to the hours of 8:00 a.m. to 9:00 p.m. daily and beginning June 20, Sunday hours of 9:00 a.m. to 9:00 p.m.

The dedication was a grand affair. Nineteen-year-old Rita Rio, who earned national fame as the singing and dancing star with Eddie Cantor in the movie "Strike Me Pink", was sent by NBC to Albuquerque for the dedication. She brought with her her NBC All-Girl Orchestra, "The Rhythm Girls," for a public dance which was held at Carlisle Gymnasium at the University of New Mexico. The music began at 5:00 p.m., when the new transmitter was turned on for the first time; the program was broadcast from 5:00 to 7:30 from the studio, then from 7:30 to 9:00 from the gym. Dancing followed until midnight.

Congratulatory telegrams from Senators Carl Hatch and Dennis Chavez, Representative J. J. Dempsey and Judge Sam G. Bratton were read, and at 8:00 p.m. none other than Governor Clyde Tingley was introduced to more than 2000 people attending the program to deliver the dedicatory address: "I feel that this program dedicating the KOB hook-up with the National Broadcasting Company is just as important a step in progress to us today as the coming of the railroad or the wireless were to earlier pioneers in New Mexico.

"This step is significant of the growth of radio in the United States and in New Mexico, and it is significant of the great population growth of New Mexico and the Southwest which makes possible the extension of these nation-wide facilities.

"Through KOB and the NBC network we become more closely tied up with the rest of the country, and through these new network facilities we conquer a little more of the frontier. It seems to me particularly fitting that this pioneer station should have a place in the great network which has pioneered in radio chain broadcasting and which has done so much for the advancement of radio's usefulness to the nation. . . .

"After Dean Goddard's death the question of financing the station became a pressing problem. Costs of repair, or new equipment, maintenance of the increase to 10,000 watts, programs, staff and other costs finally proved too burdensome for the college, and at last it became necessary to lease the station.

"For a time the station continued to operate under lease from Las Cruces. Then in 1932 it was leased to the *Albuquerque Journal* and went on the air from Albuquerque on October 5 of that year.

"Last year we investigated the possibility of making KOB a state station, entirely uncommercial, operated for the benefit of state educational institutions and to advertise New Mexico's attractions to the world. After thorough investigation the conclusion was reached that even with several state agencies co-operating the station would continue to be a financial drain, and that there was no hope of making it self-supporting. In August, 1936, the station was sold by the college to the Albuquerque Broadcasting Company and became for the first time privately owned.

"Under private ownership the station has been steadily improved, new equipment added from time to time, until during the past month a complete new transmitter has been installed . . .

"As a radio fan I have long felt that New Mexico should have the advantages of a chain hook-up, and I know that the radio audience of the Southwest will join with me in congratulating KOB and NBC on the extension of the network into New Mexico.'

Speaking for State College was its president, Dr. Ray Fite:

"The success of the National and Western Farm and Home Hour is the best evidence which I can offer in appreciation of radio on the part of rural people. Rural folks may not write as many letters and postcards to station managers as do the admirers of the leading song hits, but careful surveys disclose that they listen to radio programs.

"Radio has lent itself peculiarly to the informal programs of agricultural instruction offered by the United States Department of Agriculture, the A & M College, and particularly the Agricultural Extension Service and Experiment Station. The traditional isolation of rural people is disappearing, not because rural people of today are inherently

different from their ancestors, but rather because of the new avenues of information which their own institutions and their own organizations can use in informing them . . . A wealth of agricultural information is available to every farmer and rancher in America at the twist of a dial.

"The National Farm and Home Hour and related programs have been especially valuable in providing urban understanding of rural problems. Your speaker knows from experience how many urban folk are regular listeners on the agricultural programs of the radio. The college expects to develop its contributions to KOB programs in order to make them more valuable and more entertaining."

United States Senator Dennis Chavez, in his welcome to KOB, asked: "Can anyone, realizing the unlimited importance of this great medium of communication, education and enjoyment, fail to appreciate what it means for Albuquerque?

"Albuquerque, I congratulate you. Your connection through station KOB with the affiliation of the National Broadcasting Company networks marks your coming of age, one more achievement to be credited to your progress of the past . . ."

Entertainment from the local bank included Frank Franchini, a concert violinist accompanied by Irene Bentley; the Harmony Four quartet composed of Lemwood Hodges, Morris Johnson, Hobart LaGrone and director Oliver LaGrone, who sang spirituals; Nato Hernandez and his Tipica Orchestra, who played Spanish and Mexican melodies; and the dance band, Ed Black and his Dukes. Extra police were detailed to handle traffic and crowds as between six and seven thousand people attended the program. Many more heard the dedication on the radio.

At eight o'clock Tuesday morning, June 15, 1937, KOB officially joined the 232 stations of the Red and Blue networks of the National Broadcasting Company as an affiliate, the first NBC station in New Mexico. At noon, NBC presented a "Salute to KOB" on its network program, "Airbreaks," with continuity for the program written by Owen P. White. Mr. White, a former New Mexico resident, frequently wrote for *Collier's Magazine*. The program lasted from 12:00 - 12:30 p.m., when KOB's listeners were welcomed to the Western Farm and

Home Program, not previously available in New Mexico on a regular basis.

State College continued to broadcast a half-hour program on Tuesdays and Thursdays, and a fifteen-minute Farm and Home program Monday through Saturday mornings. Lee Gould, Dona Ana County Agent, had the regular job of preparing radio scripts for the Extension Service, which he sent to Albuquerque for broadcast over KOB.

Then in October of 1938 Gould purchased a Presto-Disc Cutter and recorded his agricultural programs at the college. This became KOB's first transcription service.

In September, 1938, KOB installed a directional antenna and the FRC allowed KOB to broadcast full time at 1180 kc. The directional antenna was another George Johnson device, a "parasitic directional antenna." By tuning one of the two antenna towers he produced a broadcast pattern which resembled a pear, instead of a circle, and which limited KOB's output in the direction of KEX in Portland to five kilowatts while other areas received the full ten kilowatts of broadcasting power. Thus there was little interference to KEX, and time-sharing between the two stations was no longer required.

* * * * *

J. C. McGregor, KOB's first Albuquerque announcer, looked hard into the face of KOB's chief engineer one morning. "When did you grow that thing?" he asked.

"My mustache? Why, I've had it for *years!*" George Johnson told him.

"Funny. I never noticed it before."

Johnson decided if his mustache was no more effective than that, he might as well shave it off. It was beginning to be a nuisance to keep it trimmed, anyway.

CHAPTER XXIII

An Array of "Firsts"

IN 1934 THE North American Regional Broadcasting Agreement was drawn in Havana, Cuba, to "straighten out the radio situation." All stations in Canada, the United States and Mexico were assigned to new channels based upon their size and location. In that year, and for the following two years, KOB was still an educational radio station. KOB did not send a representative to the conference, for it was felt the educational interests in Washington would see that KOB received a good channel assignment.

It took a number of years for the new allocations to be implemented. It wasn't until 1941 that KOB discovered that, through its sin of neglect, it had been left out entirely and had *no* wavelength assignment on which to operate!

KOB's vigorous protest of its fate was handled with kid gloves, as a suit by the New Mexico station could have upset the entire Havana treaty. As an emergency measure, KOB was paired with station WBZ in Boston, on 1030 kc, on March 29, 1941.

KOB was not happy. At times WBZ came in loud and clear in Albuquerque, causing devilish interference to KOB's broadcasts. And KOB had big plans on the board.

Early in 1941 Pepperday purchased a new 50,000-watt RCA transmitter, based on George Johnson's three-point recommendation: (1) more power would expand the station's advertising market; (2) a bigger market would increase KOB's business from the network; and (3) if KOB could again arrange to buy just part of a transmitter, the increased power could be attained with a modest capital investment.

With the third condition met by RCA and George Johnson's ingenuity (one of his innovations being the use of the old 10 kw transmitter

Don Wilson was master of ceremonies, and Martha Tilton came to sing for the dedication.

as an "exciter" for the 50 kw system), KOB went to 50,000 watts on July 17, 1941, with an expenditure of $50,000 as opposed to $125,000, the cost of a full ready-made transmitter system.

The dedication of the new transmitter was an even bigger celebration than the NBC affiliation party had been. The KiMo Theatre was the site of the dedication program, and 1500 persons attended. Hundreds more were turned away. Thousands listened on radio.

Don Wilson, Jack Benny's announcer, acted as master of ceremonies. He was introduced by KOB manager Frank Quinn. Warren Matts, KOB's newscaster, introduced Governor John E. Miles, Albuquerque City Commission Chairman (former governor) Clyde Tingley, and President Hugh Milton of State College. Don Gilman, NBC vice-president in charge of the western division, made the principal dedicatory address.

Martha Tilton, NBC vocalist, sang "You and I," "Daddy," and a swing version of "Nellie Bly," accompanied by Bud Nelson and his orchestra. The Albuquerque Symphony Orchestra played Schubert's "Rosamunde" under the direction of Grace Thompson. The Little Theatre group presented a parody of "The Lone Ranger" with George Johnson stealing the show by mugging with his sound-effects pistol. Other participants were Charles Barrington, Van Haafton, and Mary McConnell of the KOB staff. The La Fonda Orchestra of Santa Fe played two numbers to close the program.

KOB's choice of equipment was the RCA 50-E transmitter, which is still in use today. At the time KOB served an area of more than 150,000 square miles, an area with a low population density, which made it necessary to limit station operating expense to keep the KOB advertising rate comparable with those of major markets. It was necessary to minimize installation cost without sacrificing program quality or service.

The RCA 50-E's high level class B modulation system requires a minimum of power input. A push-button tuning system on the transmitter makes it possible to vary the coupling to the antenna and compensate for the change in power output due to line voltage regulation.

The audio equipment used to drive the modulator in the transmitter

uses only four 828 beam power tubes. All audio equipment is mounted on the back door of the modulator stage so when the door is open all tubes, meters, transformers and the common bias rectifier are exposed, so trouble-shooting and tube changing requires minimum effort.

High voltage is supplied by six type-857A tubes and standard rectifier equipment with a very efficient rectifier starting circuit which eliminates all initial surges and resulting arc-over troubles. KOB has experienced no arc-backs, even during the initial test which put a 70-kw load on a new set of green tubes.

The 50,000 watt transmitter was one of the first air-cooled systems, and with Albuquerque's hot, rarified air (at 5000 feet altitude), Johnson was dubious about switching from a water-cooled system. The air-cooled system proved superior, however, noticeably by eliminating water leak troubles when changing tubes and the expense of buying and trucking distilled water to the plant. The operation is also quieter and much more flexible. A stream of air can be directed on a hot piece of equipment, as water could not, and the blower equipment is large enough to provide extra air as needed.

The power amplifier and modulator in the transmitter require very low plate voltage, only 9850 volts, which minimizes peak surges from over-modulations, lightning, line voltage surges, etc., as well as providing a greater safety factor.

Interference from WBZ, however, continued to plague KOB. George Johnson kept a careful record of WBZ's field strength measurements and presented it to the Federal Communications Commission with a protest. The protest included a recapitulation of total average daily time devoted to:

Entertainment	—	11 hours, 12 minutes
Education	—	32 minutes
Religion	—	10 minutes
Agriculture	—	32 minutes
News	—	1 hour, 36 minutes
Miscellaneous	—	1 hour, 36 minutes

The agricultural and educational programs came by transcription from New Mexico State College and the Extension Service and transcriptions were also supplied by the Forest Service, Biological Survey, Army and Navy, etc. The following is a sample daily program schedule (November 18, 1941):

7:00	Sunrise Serenade
7:15	News
7:30	Breakfast Club
8:00	Vignette Varieties
8:12	Today on KOB
8:15	Helen Hiett
8:30	Music in the Morning
8:45	Prescott Presents
9:15	Viennese String Ensemble
9:30	The Feminine Touch
10:00	Missing Persons
10:15	Mary Lee Taylor
10:30	KOB Newscast
10:35	Community Bulletin
10:45	A to Z in Novelty
11:00	Ma Perkins
11:15	Lone Journey
11:30	The Goldbergs
11:45	Life Can Be Beautiful
12:00	Studio Party
12:15	Army Band
12:30	News
12:40	Women in the News
12:45	Tax Instruction
12:50	Musical Interlude
12:55	Speed Derby
1:00	New Mexico Farm and Home Hour
1:15	Number Please
1:45	Musical Revue
2:00	Club Matinee
2:45	First Army Maneuvers
2:55	A P News
3:00	When a Girl Marries
3:15	Portia Faces Life
3:30	We, the Abbotts
3:45	News and Views for the Ladies
3:50	Closing Stock Quotations
3:52	Musical Interlude
4:00	Adventure Stories
4:15	Secret City
4:30	Speed Derby
4:35	Minute Musicals
4:45	The Symphonuts
5:00	Tropical Moods
5:15	Scattergood Baines
5:30	Sports Review
5:45	News
6:00	Treasury Hour
7:00	Burns and Allen
7:30	Fibber McGee and Molly
8:00	Famous Jury Trials
8:30	Red Skelton
9:00	Pleasure Time
9:15	Roma News
9:20	String Ensemble
9:30	Johnny Presents
10:00	Adventures of the Thin Man
10:30	News
10:45	Hal Hallett's Orchestra
10:55	AP News
11:00	Sign off

That month a Special Service Authorization from the FCC allowed KOB to move to 770 kc, a channel shared by station WJZ (now WABC) in New York. Strangely enough, KOB had previously shared *760* kc with this station in 1927. Even stranger, KOB still shares the

770 assignment with WABC, on the "temporary permit" issued November 3, 1941. KOB was happy; WJZ was not.

FCC permission for KOB to increase its power to 50 kw on the 770 kc channel applied only to daytime broadcasts, with nighttime broadcasts limited to 25 kw until a directional system was erected to protect the northeast station, WJZ. The RCA 50-E's pi output circuit is so flexible the reduction of power from 50 to 25 kw could be accomplished by merely pushing the coupling condenser button; no plate circuit retuning was required and the reduction caused no pause in carrier or program. All necessary retuning could be done during regular operation.

The new transmitter resulted in an eightfold increase in KOB's signal strength since 1938, giving daytime service to parts of New Mexico, Colorado and Arizona which previously had no radio service whatever. That the new equipment was effective came to light in letters from listeners, such as:

"February 18, 1946

"Radio Station KOB
Albuquerque, New Mexico
Office of the Chief Engineer

"Dear Sir:

"My curiosity will not go unsatisfied. How do you do it?

"For the last few years my business has required that I travel all over the states in the Rocky Mountain region from the Canadian to the Mexican borders both east and west to the Continental divide. Most of the time I carried a General Electric portable radio receiving set with me. Using this set, there were very few locations where it was not possible to receive KOB quite consistently in the early morning and late evening hours . . .

"Unless it would be divulging a trade secret, I wonder if you could take a few moments and tell me about your antenna system? . . . Incidentally neither KOA or KSL can hold a candle to KOB for general coverage in my estimation. I've even listened to you while riding on the Union Pacific through Wyoming.

"May I hear from you at your convenience as I am very interested in how you manage to put out such a fine signal.

"T. G. Morrissey
Denver, Colorado

"P. S.: Those early morning general weather reports often were a lot of help in planning for winter driving across open country."

Mr. Johnson's reply:

"February 27, 1946

"The KOB transmitter is in a position that gives an excellent ground system. We are a quarter of a mile from a bend in the Rio Grande River and a strata of under ground water flows underneath the grounds. In fact, the government has put in drainage ditches to lower the ground table to about seven feet, whereas it was originally practically at the surface.

"We have the usual ground system of 122 radials over 400 feet long. Our antenna is 440 feet which is about the same height as KOA, but ours has a slender base which reduces the base capacity and I believe this contributes to its radiating qualities. We also built our antenna unit with a low capacity as I have the theory that electrostatic stresses at the base are merely a loss as they contribute very little to radiation."

Lee Gould, the Dona Ana County Agent who instituted transcriptions of agricultural programs for KOB, was killed in an automobile accident in December, 1946. Tom Jones, a State College graduate, replaced Gould from January to July, 1947, and in August 1947 Cecil Herrell became radio editor. He purchased tape equipment and initiated tape service to KOB and to other New Mexico radio stations.

Flush with success in radio, Tom Pepperday thought he'd like to get into television. He applied for a television license in 1943, but his application was denied because World War II was still on. It wasn't until 1948 that Pepperday could carry out his new venture. Even so, KOB television became the first TV station between St. Louis, Missouri and the west coast.

Again Pepperday had taken an expensive tiger by the tail. Neither he nor Johnson had any idea how costly it would be to get a television station in operation. Just a tube for a TV camera cost $1000, a hefty investment for a permanent piece of equipment, but the tubes of that decade had a life of only 200 hours. Kinescopes (films photographed from a TV tube during a live telecast) from the network seemed like an economic move; Johnson wrote to ask if NBC could supply them with a couple of thirty-minute programs. The reply was that they would cost $25. It didn't seem *too* bad, at $12.50 each, but subsequent correspondence disclosed that the price quotation was on a *per each* basis, and should have read $50 rather than $25.

Some serious thought was given to backing off.

But Pepperday, who had gone out on a limb before, persevered. And on September 13, 1948, KOB-TV signed on the air. On November 29 KOB-TV made its first commercial telecast, and the first remote telecast was made that fall from the New Mexico State Fair in Albuquerque.

Bright-eyed, energetic Fernand A. Bibeau joined KOB in 1949 as a part-time radio recording engineer, a job that required numerous trips to the station each week to "catch" beer-sponsored radio programs and transcribe them for presentation after 10:00 p.m. Mr. Pepperday's policy was to delay beer-sponsored shows until after children were (presumably) in bed.

Later Bibeau became a TV technical supervisor and an auxiliary chore was the repair of Mr. Pepperday's home television set. Trouble was, KOB-TV only broadcast three hours a day, and in order to assure Mr. Pepperday's chance to watch the programs, Bibeau had to drive to the transmitter, turn on the test pattern, drive to Mr. Pepperday's home, fix the set, and drive back to the transmitter to turn off the test pattern. He spent a lot of time on the road.

So did the rest of the TV crew. Remote telecasts became an offhand affair, requiring only a bit of advance coordination with Mead's Bakery. Their truckdriver had to make a daily bread delivery to Santa Fe; one truckload a day served the small state capital adequately, and the driver normally could afford to wait until daylight to begin his 60-mile trip northward. However, when KOB had a remote broadcast on its schedule, they asked the breadman to rise at 2 a.m. to make his Santa Fe run, and return the truck to Albuquerque as early as possible. Soon as he returned with the truck, KOB's crew swept out the breadcrumbs, wheeled its mobile equipment on board and bolted it down, loaded on its cables, its hand-cranked generator (cunningly housed in a baby carriage), and its personnel, and took off for the filming site.

On May 7, 1949, Johnson received a gratifying telephone call from Harry A. Peters of Santa Ana, California. Peters reported he had received a good image from KOB on his home set. It was a freak occurrence, of course; KOB-TV's effective radius at that time was

considered to be fifteen miles, although the station frequently was received in Santa Fe and in Los Alamos.

George Johnson was chief engineer and television manager, and Phillip G. Hoffman was KOB radio manager until January, 1952, when Hoffman resigned and was replaced by J. I. Meyerson.

T. M. Pepperday sought no glory for his broadcasting work; political entanglements, however, brought into the public record the long-lasting burden he carried in preserving for New Mexico its first and largest radio station. Without his influence, Goddard's creation would undoubtedly have passed out of the state, if not out of existence. Pepperday also wrought such improvements and expansions as to lead KOB toward its present prestige in the radio industry; and Pepperday was the financial force behind the establishment of KOB-TV, New Mexico's first television outlet.

Pepperday's broadcasting properties, which had been quite costly to him through the years, eventually yielded a good return. He had paid the college $25,000 for the station (plus several times that much for operating and improvement costs during the leasehold arrangement and after he owned the station outright), but in May, 1952, he sold the stations for $900,000 to Time, Inc., and to Wayne Coy.

The sale was approved by the FCC in denial of a petition from the American Broadcasting Company. ABC demanded that a decision on the continuing operation by KOB on the 770 kc wavelength assignment should be made before the station was sold.

The purchase of KOB was the first investment in television *property* by Time, Inc., the publishers of *Time, Life, Fortune,* and the *Architectural Forum,* although Time had been active in TV programming and production for many years.

Coy made a small cash investment in the station, but received full 50% ownership in the station as compensation for his general consultant services to Time, Inc. Coy also became president and general manager of the Albuquerque stations.

Wayne Coy was a 1926 graduate of Franklin College in Indiana, and former city editor of the Franklin, Indiana *Evening Star.* He became owner and publisher of the Delphi, Indiana *Citizen* in 1930.

In 1933 he began a political career as secretary to Indiana Governor Paul V. McNutt. After holding several other Indiana governmental posts, he became administrative assistant to the U. S. High Commissioner to the Philippines, then assistant administrator with the Federal Security Administration, and then special assistant to Franklin D. Roosevelt during World War II. He resigned his federal post in February, 1944, to become assistant to the publisher of the Washington *Post* and director of the *Post's* radio activities. In December, 1947, he resigned to become chairman of the Federal Communications Commission, a position he held until February 21, 1952, when he became a broadcasting consultant for Time, Inc.

Under the sales contract between Pepperday and the college, the college was granted perpetual free time on the radio station. In 1951 the FCC held that a new license could not be issued to any station which was bound by a contract to furnish time to the former owner beyond a specified date. As a result, NMA&MA's president, John W. Branson, signed a new agreement to end the free-time provision for compensation of $50,000, a considerable gain to the college resulting from "Goddard's hobby." KOB, however, continued voluntarily to carry State College programs without charge even after the contract was voided.

In 1952 the FCC, in a nation-wide move to "unfreeze" TV following the second World War, made video channel assignments to more than two dozen cities in New Mexico, including three VHF commercial and one VHF educational assignments to Albuquerque. At the time, KOB-TV was the only television station operating in the state.

Company directors were Mrs. Wayne Coy, secretary; Arthur Murphy, vice-president (he was also manager of the March of Time division of Time, Inc.); and Charles L. Stillman, executive vice-president and treasurer of Time, Inc. Both the radio and TV stations are wholly RCA-equipped.

An ambitious early programming effort presented over KOB-TV was a series of folklore and artistic achievements of New Mexico, titled "Enchanted Trails." The programs were developed by the radio

committee of Albuquerque's branch of the American Association of University Women. The series began December 5, 1952 with the program, "Byways and By-Lines of Our Enchanted Land," featuring novelist Wilfred McCormick of Albuquerque, the creator of the Bronc Burnett series for teen-age boys. Also on the program were Gilberto Espinosa, a lawyer and historical writer and a pioneer son of New Mexico, and Earl W. Scott of Santa Fe, the public relations director for the New Mexico State Tourist Bureau.

The second program, "Trailblazers," covered the Spanish and Indian eras in New Mexico with emphasis on folklore. The third program, depicting villages, mountains, rivers and general topography of the state, was called "Over Mesa and Mountain," and "Creative Trails," the fourth presentation, portrayed arts and crafts of New Mexico's varied cultures. Fifth and final program in the series was "Trails of the Future."

CHAPTER XXIV

Destiny Fulfilled

"I am glad to advise you that our happy relationship was started on June 15, 1937 and in addition to celebrating your 40th commercial birthday on April 5th you will be able to celebrate your 25th anniversary as an NBC affiliate on June 15th—all the best."

DON MERCER
National Broadcasting Company, Inc.
in a congratulatory wire to KOB
February 23, 1962

ONE OF THE NEW television channels assigned to Albuquerque was used by KGGM, on Channel 13. KGGM, owned by the New Mexico Broadcasting Company, is a CBS affiliate, but in spite of fierce competition in both radio and television, KGGM and KOB cooperated in many ways.

KGGM was located in the KiMo Building at Fifth and Central, while KOB's radio studios and offices were at Fifth and Silver Avenue. The KOB-TV facilities were on Buena Vista Drive. The two broadcasting companies decided to form a cooperative company, the Sandia Television Corporation, to purchase land together; a new block-big site bounded by Fourteenth Street, Coal Avenue, Iron Avenue, and Alcalde Place in southwest Albuquerque. KOB constructed new facilities on the west half of the new site, and KGGM built on the east half, with a private way built to separate them. The private way is now called "Broadcast Plaza."

The Sandia Television Corporation also built a cooperative transmitter site on Sandia Crest, at an elevation of 10,678 feet above sea level (about a mile above Albuquerque) in the Cibola National Park

in 1953. This extreme height gave both television outlets a tremendous reception range. The joint company had to build and maintain an access road to the top, and the buildings, fuel and food storage areas, the garage, the jeep, the snow-cat and the tractor were cooperatively used, although each station built its own tower and has its own staff. The location is the highest television transmitter site in the nation; until Mexico City built its tower at an even higher elevation, this site was the highest in North America. KOB-TV has the taller tower of the two, an engineering accomplishment which extended KOB's reception range into southern Colorado.

Personnel at the site, about thirty-five road miles from Albuquerque, camp in round the clock, working rotations of 48 hours the first week, 48 hours the second week, and 72 hours the third week, then repeating the cycle. Employees of the two stations share the bedrooms and kitchen facilities.

No power lines were available at Sandia Crest in 1953, so the stations had to generate their own power—and the crews had to haul diesel fuel up the mountain at each shift change, to feed two 100-KVA and one 50-KVA generators. Power lines were eventually rigged up the mountain, but there were still problems on Friday nights. Lighting for Little League baseball games pulled so much power that the television stations were blacked out. That problem has now been solved, and the generators are used only for emergency power.

KOB's radio station continued its national prominence. The November 26, 1956 issue of *Sports Illustrated* saluted KOB radio personality, Frank Joyce, for his thrice-daily outdoor commentary, "Coors Calling" (Coors Beer was the sponsor). Joyce's five-minute shows were vehicles for emergency messages to hunters, who knew to tune Joyce in on their car radios or portable receivers just before sunup, at noon, and again just after sundown. Via Joyce, avid New Mexico hunters could learn that an expected offspring had arrived and the condition of mother and child; family emergencies were also relayed; and sometimes an impatient hunter would learn over KOB that he'd left his tent at home.

In addition to personal messages, Joyce gives weather and hunting conditions, interviews with hunters, and folksy safety advice.

Entertainment was the big thing in radio, with television still in infancy. KOB's radio personalities in the fifties were George Mahoney, Mary McDonald (George Mahoney's wife), Tom Washington, Dick Bills and the Sandia Mountain Boys (one of Dick Bills' guitarists was his nephew, Glen Campbell—yes, the "Gentle on My Mind" Glen Campbell), Reed Upton, newsman Tom Doyle, Frank Joyce with sports, and a Western Music show sponsored by Postal Finance 9:30-10:00 Monday through Friday nights and 9:15-10:00 on Saturdays, with Joyce as host.

Joyce's Postal Finance Show lasted eight years and claimed 55-60% ratings—a phenomenal draw. The show was on a "write-tonight" basis, and he received thousands of letters from every western state and Canada. His sponsor gave him a gold watch inscribed: "To a great pitch-man—Frank "KOB" Joyce."

Joyce joined KOB radio June 13, 1951 and began doing some television work as well in the fall. During his early years the network strongly influenced KOB's operation; announcers were encouraged to be very formal and to develop mellifluous tones. With nearly all performances and commercials broadcast live, there was an immediate pressure which has changed greatly with the advent of recordings. There is still a constant pressure, a continual criticism and evaluation of an announcer's work from the audience. From the early years, when announcers were required to fit into a standard mold, to the age of the disc jockey, when personality was all, requires flexibility. Joyce has changed with the times, for he feels his work gives an important service. He has now become a specialist, a sports and outdoor authority. He has done many play-by-play broadcasts of UNM Lobos games and he does the weekend sports news on television. He counts a number of celebrities among his friends and swears that he knows exactly where to find game and fish on any particular day thanks to friendships with knowledgeable New Mexico sportsmen. His boys, ages 23 and 20, share his love for the outdoor life, while his wife, of course, hates it.

One of the most memorable of all KOB personalities was "Johnny G." Young, handsome Johnny Griswold was the first of KOB's powerful disc jockeys; powerful in the sense that he could make his own terms in that Age of the Disc Jockey, the 1950's. Johnny's trademark was a collection of canaries which provided his background music. He had the complete confidence and backing of management and the love of his listeners. He was well paid and could easily have gone to a bigger market. But he loved the Albuquerque country and the people loved him. He broadcast over KOB for eight years before his early death in June, 1956.

In 1956 KOB was required by the FCC to install a directional antenna for night-time use to protect WABC (formerly WJZ) in New York City with whom it continued to share the 770 kc "temporary assignment" instituted in 1941.

That year Time, Inc. had an opportunity to purchase three new television stations in Indianapolis, Minneapolis, and Grand Rapids. The FCC, however, had a multiple-ownership regulation limiting a company to five stations. In order to comply, Time had to let go one of their three stations, and they decided to sell KOB.

Stanley S. Hubbard flew into Albuquerque during Christmas week in 1956, arriving after dark. The next morning the young Minnesotan woke to the sight of his first mountain—enough mountains to make up for a lifetime's privation. Initial discussions took place at that time, and in April, 1957 KSTP, Inc. (now Hubbard Broadcasting, Inc.) of Minneapolis purchased the KOB stations for $1,500,000. Hubbard Broadcasting, Inc. owns and operates KSTP-TV and radio in Minneapolis and St. Paul and at that time held an interest in KWK-TV in St. Louis.

Stanley E. Hubbard, Stanley S.'s father and president of KSTP, Inc., said of his new purchase: "We feel that our experience and record of public service programming in Minneapolis and St. Paul will help us in maintaining and strengthening the tradition of community service which Time, Inc., and Wayne Coy have established at KOB."

Wayne Coy, president and general manager of KOB for Time, Inc., was highly and affectionately regarded by his staff, although they felt he tended toward hypochondria. There was always something wrong with him.

A unique relationship sprang up between Coy and George Morrison, a KOB announcer; although the two men were nearly of an age, they had a father-son devotion to each other, with Coy in the father role.

Coy went home to Indiana after KOB was sold, and George Morrison returned with him. Coy died in his home state within the year. Morrison returned to Albuquerque with the news, sending a wave of shocked regret through KOB that their former employer's long-lasting ill health had been regarded as a "quirk."

Hubbard appointed George S. Johnson as station manager of both KOB radio and KOB-TV, a cap to Johnson's twenty-two year career as chief of engineering at KOB.

Stanley E. Hubbard became president of KOB. It seemed to George Johnson that the merger of KTSP and KOB was destined. Stanley E. Hubbard had been an affiliate of the National Battery Company at the time that company had offered to buy KOB from State College. Johnson had found their letter while he prepared the station for the move to Albuquerque in 1932.

The merger was also a marriage of pioneers, for Hubbard pioneered in both radio and television.

Hubbard's father was superintendent of schools in Red Wing, Minnesota, where Hubbard was born. His father was killed in an accident and shortly after his death, his mother moved the family to the Twin Cities where Hubbard received education in the St. Paul Public Schools and the University of Minnesota.

In 1910, while Goddard was building his windmill generator on top of Worcester Polytechnic Institute, Hubbard built one of the first amateur radio transmitters in his state. When World War I erupted, Hubbard joincd the newly formed Signal Corps of the New York National Guard, while Goddard was teaching the Signal Corps buzzer school in New Mexico.

While Goddard was building his camping trailer, Hubbard entered the aviation field; he started flying in 1916 and still holds an active pilot's license.

Water was Goddard's element; air was Hubbard's. In 1921, while Goddard provided emergency radio service to flooded Hatch, New Mexico, Hubbard made the first successful radio communication between planes, and received national publicity for "one of the super feats of both aviation and radio."

In 1923, Hubbard returned to Minneapolis. He became more and more enthusiastic about radio's possibilities. There were four stations on the air in Minneapolis: KFDZ, owned by Harry Iverson, with five watts output, broadcast a small organ concert on Sunday afternoons. WDGY, owned by Dr. George Young, also operated at five watts, and offered listeners the pleasure of his neighbor's singing.

A similar station owned by William Royce Bemish of the Bemish Electric Company broadcast amateur talent about three nights a week.

WLAG was the big station in town, with a 500-watt Western Electric transmitter. Cutting Washington Company, a manufacturer of receiving sets, owned the station. The smaller stations were amateur "hobbies" and they went off the air about the same time WLAG did, due to financial troubles, in 1924.

That year Hubbard started WAMD, the first wholly commercial station in the United States. It operated with 1000 watts from a room on Grant Street adjoining the Marigold Ballroom, under the slogan, "The Call of the North." The Marigold Ballroom furnished the transmitter room to Hubbard with the understanding that WAMD would broadcast the national name bands provided by the Marigold; this was the area's first real programming.

Like Goddard, Hubbard was interested in sending out useful information as well as entertainment, and in 1925 he organized the first news bureau in the area for gathering local news and he scheduled regular newscasts. He developed a radio network in 1925 between Chicago and the Twin Cities. It operated during the night over two postal telegraph copper lines which cost him $15 per night. As early as 1925, long before the "Fairness doctrine" was even thought of, the

Hubbard news policy was and still is to treat all sides of issues in a balanced and fair way.

In 1927, the year KOB's studio burned to the ground in New Mexico, WAMD was also destroyed by fire. Hubbard became associated with the National Battery Company and, with other local businessmen, purchased KFOY in St. Paul. The WAMD and KFOY licenses were turned in to the Federal Radio Commission in exchange for a new license, KSTP, which became for a time the most powerful radio station in the nation. KSTP began operation in 1928 with 10,000 watts; a few weeks later it went to 25,000 watts, and later to 50,000 watts on a clear channel.

KSTP maintained the largest staff orchestra in the country in 1928: a 35-piece orchestra which performed in the KSTP studios at the St. Paul Hotel. Red Norvo, Lou Breeze, and Leonard Leigh were part of the KSTP orchestra. The Orpheum Theatre in St. Paul presented all their vaudeville acts over KSTP once a week, the first radio appearances for such acts as: Jack Benny, Edgar Bergen, Kay Kyser, Irene Rich, Olson and Johnson, Eddie Albert, Phil Baker, the Marx Brothers, Henry Sauntry, and Betty Blythe.

In the fall of 1928 KSTP joined the Blue Network of the National Broadcasting Company. The same year Hubbard created the first full time education department, and KSTP was the first U. S. station to have an education director.

Hubbard started the Radio News Association in 1930, a national news service which competed with the Associated Press and United Press, with bureaus in Chicago, Washington, D. C., New York, and the Twin Cities, and correspondents in Los Angeles. R.N.A.'s success was one of the factors which persuaded the press services to break their boycott of radio stations, and when United Press began to serve radio, R.N.A. dropped its coverage and turned its clients over to Trans Radio Press.

KSTP was the first station to cover a golf tournament live. The National Open Golf Tournament in Minneapolis was broadcast in 1930 over a portable short-wave transmitter which was perambulated around the course in a wicker baby carriage.

In 1931 KSTP, under Hubbard's direction, was the first independent station to start a special events department and it was equipped with the nation's first mobile short-wave unit.

Hubbard began experimenting with television in 1938. He purchased a television camera and a remote unit from RCA; in 1939 he televised a special American Legion parade which he fed to sets in the Radisson Hotel over closed circuit. In the fall he demonstrated television at the Minnesota State Fair by letting people view themselves in front of the camera while their friends watched over seven demonstration sets. Approximately 200,000 Midwesterners saw their first television set at that display.

In 1945 KSTP stations expanded into a larger building. KSTP-TV went on the air April 27, 1948, five months before KOB-TV went on the air. KSTP was the first television station in its part of the country and the first NBC-TV affiliate in the nation. In 1961 it became the first all color TV station in the nation.

Besides his technical pioneering, Hubbard was a leader in radio and TV programming. During World War II he started "America Calling," a program which portrayed American culture and the democratic way of life to our allies and enemies in the Pacific. KSTP signal is the most powerful towards the West, delivering the equivilent of about 132,000 watts. So with this strong signal KSTP created the "Overseas Special" to provide entertainment, sports, news and voices from home to the G.I.'s in all the remote islands of the South Pacific. Frequently the members of the armed forces from World War II stopped at the studios in appreciation of the programs they received.

The "Mobilization for Peace" program was Hubbard's post-war effort to educate the community on the problems of returning to peacetime. This later became "Jobs for G.I.'s," a show which helped in the re-employment of hundreds of servicemen.

Hubbard launched a public information campaign on brucellosis, a cattle disease which can be transmitted to humans, in the 1950's. This educational effort resulted in legislation to provide for record-keeping on diseased herds and prohibition of transport of diseased

cattle. Recently Minnesota announced it is finally rid of the costly disease.

Several police cases in the Twin Cities have been solved with aid of Hubbard's "Secret Witness" program, instituted in 1950 to encourage citizens to report information on unsolved crimes to KSTP news. The information was relayed to the authorities, and when information led to an arrest or conviction, the "Secret Witness" received a cash award.

Hubbard also installed the first transmitter in the Midwest for the St. Paul and Milwaukee Police Departments and created the first communication system for police cars.

Stanley E. Hubbard is currently Chairman of the Board for Hubbard Broadcasting, Inc., licensee of KSTP-AM-FM-TV, Minneapolis-St. Paul; KOB-AM-FM-TV, Albuquerque; WTOG-TV, Tampa-St. Petersburg; and WGTO-AM, Cypress Gardens, Florida. His two sons have been active in radio and television broadcasting. The youngest son, Richard, was killed in an automobile accident while on a business trip in Texas in March, 1971. The older son, Stanley S. Hubbard, a tall, blond, young man who, like his father, holds a private pilot's license, is president and general manager of Hubbard Broadcasting.

* * * * *

On December 2, 1958, the special guest on the Mary McDonald show was Mrs. Ralph Willis Goddard. The outstanding New Mexico matron had a number of credits in her own right; she was New Mexico's Mother of the Year in 1956, past president of the New Mexico Federation of Women's Clubs, and director of Las Cruces Pan American Round Table, which took her to meetings in Mexico, South and Central America. She was a correspondent and feature writer for two newspapers and a member of the New Mexico Press Association. However, the theme of the show was to honor her late husband.

"In 1934," Miss McDonald announced in her introduction, "New Mexico A & M dedicated the Engineering Building to the memory of

Dean Ralph Willis Goddard and called it 'Goddard Hall.' Tonight we pay tribute to Dean Goddard because just thirty-nine years ago this educator, scientist, author, inventor, and Dean of the School of Engineering at New Mexico College of Agricultural and Mechanical Arts founded KOB . . . It is is interesting to note that KOB still features programs from New Mexico A&M, New Mexico Farm News —this must be one of the oldest agricultural programs in the country . . . Dean Goddard not only persevered to increase KOB's power, but preserved the clear channel which KOB still enjoys . . ."

Following the interview with Mrs. Goddard and with George Johnson, KOB's continuing link with the college days, Miss McDonald concluded:

"In closing, I think it might be well to repeat what one of Dean Goddard's faculty members said of him at the dedication of the Engineering Building to his memory: 'Dean Goddard was essentially a builder, and everything to which he turned his heart and busy hands soon took concrete form. His life was gentle, and the elements so mixed in him, that Nature might stand up and say to all the world, "This is a man." ' "

* * * * *

Following a bout with a medical problem in 1961, George Johnson relinquished his managership of KOB radio to Bob Pettingell, who had been with KOB since May, 1956.

Tom Doyle, head of KOB's news department, was special New Mexico correspondent for the Voice of America, and did extensive reporting on local events for NBC. In 1962 KOB received a 25-year plaque from the network.

That year KOB was allowed to boost its nighttime power from 20,000 to 50,000 watts on the 770 kc channel. This gave KOB a slight edge in its historic battle with WABC of New York, for WABC's application to renew its license at 50,000 watts nighttime power without directional antenna was denied. KOB, however, was required to use a direction antenna to protect WABC from interference after sundown.

A curious sidelight to this affair — the longest-lasting litigation still pending with the FCC — is that KOB's program director, Tom Dunn, is on the air with his morning show on KOB while his former Illinois roomate, Harry Harrison, is on the WABC morning show — both on the 770 kc channel.

KOB added another broadcast facility to its complex on August 14, 1967, when KOB-FM signed on the air on 93.3 mc. The facility broadcasts in stereophonic sound.

The 101-foot FM antenna is on top of Sandia Crest, alongside the KOB-TV antenna. The "line of sight" broadcast with maximum power allowed by the FCC (8.2 kw) gives KOB-FM 150-mile coverage in every direction from Sandia Crest. The FM tower, like the TV tower, has a base construction designed to protect it from destruction by 150-mile per hour winds at the Crest, and the tower is designed to withstand a two-inch ice cover during the winter months.

CHAPTER XXV

KOB — Its Fiftieth Year

"January 15, 1972

"Sir:

"First I will tell you that I am handicapped, both legs amputation, and I am a Pueblo Indian and my home is at Santa Ana Pueblo (near Bernalillo).

"The reason why I am writing to you is just to tell you that I was 16 years old when the Radio Station KOB first go on the air and the KOB and KGGM were the first Radio Station to go on the air, KGGM was at Kimo Building downtown, any way the both Radio Station were located in downtown area. In my boyhood time we trek to Albuquerque either in buggy or in wagon as that time there was not much traffic on highway as what you see now, plenty of traffic, no room for wagon to travel.

"Also I would say that I see the construction of highway 85 from Albuquerque to Santa Fe, the work was done mostly by horse and mule power. Carry cement from mixer by wheel-barrow. Also I still remember the First New Mexico State Police was organize and the Highways were patrol by motorcycle and when accident occur on any highway to call for any help was the near by telephone. No Radio.

"I would also say I have seen many changes in New Mexico in progress. Also I will say many thanks for the information on New Mexico . . .

"Happy for KOB Progress."

NEARLY THIRTY-FIVE YEARS after Ralph Goddard's death, his memory was revived over the airwaves of the southern New Mexico campus. In October, 1964 the college's stereo FM radio station signed on the air with Ralph Willis Goddard's initials as call letters. Station KRWG, the first college or university FM station in the state,

was joined by KRWG-TV in 1972. These public-service facilities operating from Goddard's campus are continuing memorials to the southwest's radio pioneer.

George Johnson retired in 1972 after forty years with the fifty year old station. Dick McKee has been the manager of KOB-AM and FM since 1964 while Jerry Danziger has headed KOB-TV since 1957 as manager. With the complexities of modern broadcasting, no longer can one man direct such a diversified enterprise as three separate broadcast facilities. Interestingly, both are New Yorkers — Easterners as was Dean Goddard—all of whom decided their futures were in New Mexico. Today McKee and Danziger labor to carry on Goddard's mission of better communication for the state.

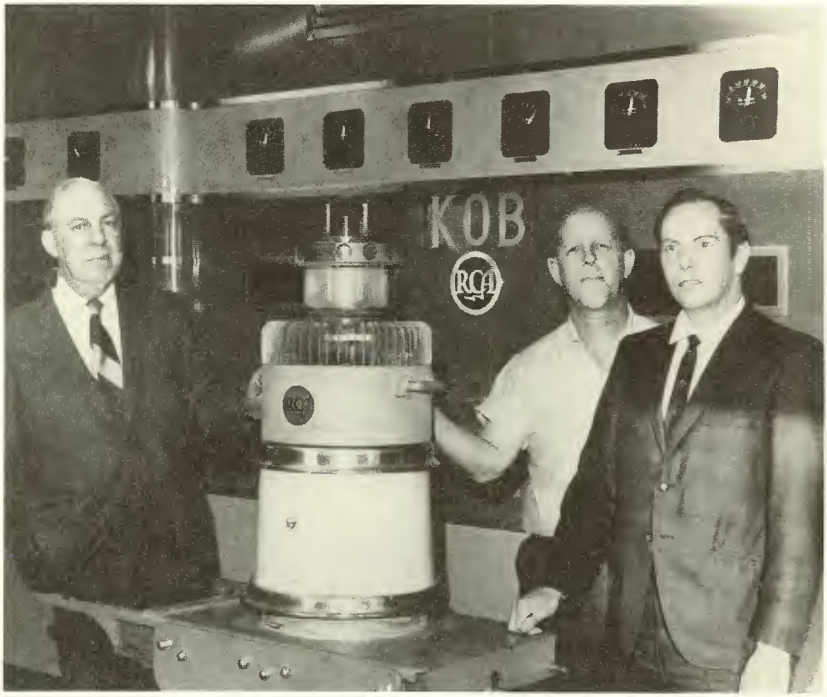
Ties between KOB, Albuquerque and the New Mexico State University campus are maintained, with KOB still returning profit to its founder's home. Much of the radio and television equipment used at KRWG was donated by KOB, the most recent gift being two RCA color videotape recorders.

Goddard's fifty-watt station has increased a thousandfold in power and his dream of reaching isolated people across the great southwest has become a permanent reality; KOB reaches them not only with news and weather information, but with the finest entertainment, audio and visual. The KOB facilities, started with scrap and determination, are now among the finest in the nation.

In 1967 the already-large Coal Street building was expanded by 6200 square feet to accommodate color television additions: a chemical mixing and analysis room—some 30,000 feet of color film is processed each month — expanded newsroom space, engineering shop quarters, carpenter shop, art and master TV control centers so that production and on-air crews can work simultaneously, a conference room equipped with projectors for slides, films and video tapes, TV, AM, and FM monitors, and sound tape recorders.

The radio main control room uses RCA cartridge tape and turntable equipment and multiplex operation is possible by means of a production room with a patch panel arrangement; several network

or local programs may be recorded while a remote broadcast is fed at the same time.



George Johnson has now retired, and Fern Bibeau (right) is chief engineer. Behind Bibeau is Julius Beverly, transmitter supervisor. The transmitter tube on the table served from 1955 until 1970—108,000 hours of operation.

The AM transmitter at Alameda operates omnidirectionally during day light, directionally at night to protect its channelmate, WABC in New York. Engineering thrift made a news item out of an RCA type 5671 tube which was installed at the transmitter in 1955 and operated until 1970, after an incredible 108,000 hours of operation.

The breadtruck days are long gone; the present KOB-TV remote van, larger than Goddard's original Radio Shack, houses four monochrome or two color cameras, a portable video tape recorder, and a

complete director's console. It will accommodate a full technical crew in its air-conditioned 34-foot length, and the van carries its own generator capable of supplying all power needed for equipment operation.

Last year KOB-FM experimentally used quadrisonic broadcasting for a three month period, one of the first stations to pioneer with quadrisonic. New FM studios upstairs at 1430 Coal is the most recent evidence of KOB's continual growth.

Radio music played today is aimed at the largest market, a "middle of the road" approach, and the Age of the Disc Jockey as an arrogant power has passed. Deejays are highly trained professionals sharing in common good English usage, clear and dramatic enunciation, moderate word rate, proper breathing technique, warmth, and their job is demanding; many off-air hours are spent in preparation for each show, getting "psyched-up" for a performance, reading of background materials, keeping up with new music, and cutting commercials. On-air hours are strictly business. The men are constantly alert, constantly evaluated by the audience, constantly projecting the station's image.

Fine facilities, modern equipment, and dedicated personnel serve the KOB policy of public service in all of its outlets. Although radio ailed for many years, it is on the rise again. From its beginnings as a spot news service, giving time checks, news headlines, and weather reports, agricultural news, and pleasant music; through its financial zenith as America's chief entertainment source and through the dreadful days of competition and the battle with television; now back to its initial and proper success as an immediate news source, a local forum, a gentle background to a day's activities, the circle is closed.

KOB

GODDARD'S MAGIC MAST

Ann Velia's writing assignment was to tell, first, the story of Ralph Willis Goddard. But who was he? Brilliant inventor? Beloved teacher? Respected civic leader? Builder of an electrical engineering college? Pioneer broadcaster?

He was all of these persons — and a few others, too — and the author had to choose carefully and blend the variegated strands of this unique man into a readable book.

He was a teacher of course—an academic leader who came to a remote land grant college in 1914 and built a prestigious engineering division. But his story is KOB, where his heart was.

On June 1, 1920 he received his appointment as Dean. Three days later he received from Washington experimental license 5XD for a 50-watt transmitter. Time after time the New Mexico winds toppled his antenna and masts, but he persisted.

By 1924 KOB had a daytime range of 1,000 miles; it broadcast comprehensive news, crop and road reports, had a studio orchestra and other live talent. In 1929 Dean Goddard built a 10,000-watt transmitter and obtained federal permission to use it. KOB was among the most powerful and most influential radio stations in the nation.

The "Goddard Years" came to a dramatic end on New Year's eve of the same year when the Dean was electrocuted while adjusting the equipment.

Another era began almost immediately; however, and a new leader named George Johnson was given the assignment of moving KOB to Albuquerque. Destined to be a significant voice in the West, KOB preserved the Goddard image of distinctive and

(continued on back flap)

ment.

Today, KOB is a 50,000-watt clear channel member of the Hubbard Broadcasting family of stations. In integrity, service, and influence it measures up to Dean Goddard's dream.

Has Ann Velia made an important contribution to the history of broadcasting in *KOB: Goddard's Magic Mast?*

Yes, but more than broadcasting history, this is a book about a desert town growing up, about a sprawling state coming together, and about a "cow college" becoming a great university. It's an absorbing story about the persons who helped make it all happen.

ABOUT THE AUTHOR

Ann M. Velia is a graduate of New Mexico State University who first became interested in the story of Ralph W. Goddard and radio station KOB when a research paper was assigned her as a class project.

She has both worked and studied at Emory University in Atlanta and at New Mexico State University, where she received her degree in journalism in 1966.

She now lives in Mountain View, Calif., where her husband, James, another NMSU graduate, is a systems engineer with Lockheed, and where they have lived since graduation from college.

In addition to research and writing, she is also a member of the board of directors of the Perham Foundation, which supports the Electronics Museum at Foothill College, Los Altos Hills, Calif. Earl Goddard, son of the former university dean who founded KOB, is president of the foundation.

A native of New Mexico, Ann maintains close ties with the state where Ralph W. Goddard did his pioneer broadcasting. Her five brothers and sisters have all attended New Mexico State University.