



ORAL HISTORY PROGRAM

**An interview with
George E.A. Hallet, 1890-1982**

April 5, 1960

Interviewed by: Edgar F. Hasting

PREFACE

Interviewed at his beautiful residence on Mt. Helix in La Mesa, California, on April 5, 1960 by Edgar R. Hastings for the San Diego Historical Society.

Note: This is a record of a spontaneous and informal conversation with the interviewer's questions and comments omitted, therefore it will not read as smoothly as a story.

BIOGRAPHY

My name is George Eustace Amyot Hallett. I was born in Cheltenham, England, on May 9th, 1890. I was brought to California in December of that same year when I was about six months old.

I don't know my father's father's name. Either my grandfather or my great-grandfather commanded a regiment which was cut up during the Sepoy Rebellion in British India. I do not remember my father's mother's name.

I don't know my mother's father's name, but I know my mother's mother's name. I don't remember her initials but her married name was Bealy. I don't know her maiden name.

My father's name was Marmaduke James Hallett. He was born in British India and when he was about three years old he was sent to England. That was the custom on account of childhood diseases -- dysentery and things like that -- that they had trouble with in India.

My father grew up in England and had considerable education. I don't know just what schools. He was Cashier in the Cheltenham Branch of the Bank of England.

My mother's name was Alida Clara Bealy and she was born near Christchurch, New Zealand. She stayed there until she was about fourteen and then she went to England, I think.

My mother must have got a lot of schooling somewhere. She was an accomplished musician and an artist.

Father and mother were married in England. After I was born my parents decided that they would like to go out to the Colonies, don't you know, and have a ranch and they debated between Florida and California. I don't know just what decided them in favor of California. They had come across the ocean in the steamer, Oceania and landed in New York, then came out here by rail and arrived in San Diego in December 1890, and they promptly bought a twelve-acre farm at Merle from a man named Scott.

There was only my sister and me in our family. Her name was Mary Amiet Hallett. She was born in England and she was about two-and-half years older. She came to America with the family.

Our twelve-acre ranch was roughly the north end of Leucadia, two-and-a-half miles from Encinitas. I must admit that neither my father nor my mother were suitable people to run a ranch. They were not very adaptable and the ranch simply wasn't run. We did have a horse for a while but not for long as I remember.

MERLE POST OFFICE MRS. RAMSEY

My father was partly occupied running the Post Office for Mrs. Ramsey who was the Postmistress. My father was not a citizen of the United States.

FLAGGING THE TRAIN

There was no store at Merle but there was an old store building across the railroad from the Ramsey's house and it was used as the Post Office and a ticket office too. When anyone wanted to get on the train they went up to the Ramsey's house and got the flag. Then they stood in the middle of the tracks and waved the flag until the engineer of the approaching train gave two toots which signified that he saw it and then you could hear him slow down and you stepped off the tracks and when the train came to a stop, you got on board. Sometimes some of the engineers were ornery and would keep you in suspense until the last minute. They didn't like to have to stop their trains.

THE MAIL CATCHER

At Merle we had only a flag station and the mail had to be delivered every morning from the train without stopping. So there was a mail catcher erected beside the tracks. Its arms were extended when the mail bag was fastened between them and the clerk in the mail car would swing a hook out from the side of the car as they approached the mail catcher and the hook would pass around the bag and pinch it in the middle so it would not fall and then the clerk would swing the hook around in through the door and pull the bag into the car. At the same time the clerk had kicked the bag of mail to be delivered to Merle off the floor of the car and through the door and onto the ground where it went rolling. The train would be going at least thirty-five miles an hour.

THE BENCH

There was a solid bench about ten feet long installed beside the mail catcher and every morning at about time for the mail to arrive there would be several of the local citizens on that bench. It was a regular meeting place. There would be my father, Mr. Ramsey, Dr. Staniland, Mr. Eaton and later Mr. Fred Coutts and maybe Mr. Wright. All the local gossip and news was exchanged at that time while they were waiting for the mail train. Then the mail would arrive and it would be distributed and everybody would disperse.

CHURCH

THE MELODION

MRS. WOODWARD

At Merle there was an Episcopal Church and once every two weeks a minister came down from Oceanside and conducted services. The church was equipped with a small melodion and I believe Mrs. Woodward played the melodion for the services.

WATER SUPPLY

EATON'S WELL

COUSINS' WELL

We all relied on rain water and we all had cisterns by our houses. In normally wet years that supply would take care of us but in dry years the cisterns would become empty and we would have to haul water either from Eaton's Well, which was in the first valley behind Merle, or haul water from Cousins' Well, which was in Cottonwood Canyon on the north edge of Encinitas. We hauled the water in a barrel in a large buggy or wagon.

TOM COUSINS' STORE

The only business activity at Encinitas was Tom Cousins' store and that was quite a meeting place.

SWIMMING

The beach was always a great attraction to me and in the early days us boys never bothered with bathing suits. We just took off our clothes and bathed. If anybody came along it would be in a buggy driving along the beach and we could see them a mile or two away and in plenty of time to hide or get dressed. No one could see us unless they were on the beach. Maybe somebody peeked over the cliff at us sometimes but they didn't have to peek.

We also used to bathe in the lagoon. That's where we mostly learned to swim and to paddle rafts made of railroad ties and so on -- and got our early water training.

HAND LINE FISHING

We used to do quite a lot of fishing using a hand line. We had no poles. We would coil the line up in our left hand and throw it out -- possibly a hundred feet. We used to get a lot of fish -- corbena and perch and croakers -- using only sand crabs for bait. No, they weren't always soft-shell crabs, they were any kind that we could get. The fish would bite the eggs out of the hard-shell crabs and if you had put on the hook so that it would stick down into the eggs, why you'd get the fish!

CLUB HOUSE

Until about 1900 there was a large club house at Leucadia up on a cliff right close to the ocean. It had stained glass windows in its big dome and a cypress hedge all around the building.

LIVERY STABLE MUSHROOMS

Down where the present highway is there was a large livery stable long disused. That was a great place to find mushrooms as there had been a lot of manure there.

BIOGRAPHY

My father didn't make his living at the ranch and the Post Office. I don't know what amount of money he made there. Father and mother had an income -- it amounted, I think, to about sixty dollars a month at that time and that was what we were brought up on.

SCHOOLING

We had a little school at Merle and it was about an eighth of a mile from my house. It was a fourteen-by-twenty homestead shack. We had various teachers who were paid about sixty dollars a month.

The teachers and their families' usually occupied one of the several vacant houses around there. There had been a boom about 1890 and as a result there were a number of houses there including some at Leucadia. We went to about the seventh grade at Merle and then that school was closed down. For some years there was a bus that took us to Encinitas where I went through the ninth grade.

BIOGRAPHY

My father lived there at Merle off and on until his death in 1928. My mother left there about 1908 and lived for a time with Mrs. Birchley in Oceanside and then after a few years she went to her mother's place in Alassio, Italy, and was there until her death in 1939.

ELMER CLAPP

When I got through the ninth grade of school I left home and worked for a commercial fisherman named Elmer Clapp. I worked for him at Encinitas for about six months. Then later I moved to La Jolla with him and worked there about a year.

**FISHING
NOONAN'S POINT
LOBSTER TRAPS
TRAWL LINES**

There was no wharf at Encinitas. At what we called Noonan's Point there was a slight cove in the coast. A reef ran out and broke the force of the swells when they were coming from the northwest and it made a place where the waves broke closer to shore. We could get out in our dories unless the surf was altogether too big. We operated lobster traps for two or three miles up and down the coast each way -- usually around the kelp beds. Then the rest of the year we operated long trawl lines with seven hundred or a thousand hooks. The lines would be stretched on the surface or on the bottom according to what fish we were after. On the surface we would get barracuda, yellowtail and kelp bass and then on the bottom we would get sand bass and halibut. When the trawling lines were put out in each case both ends were anchored and the line was held up on the surface by seine corks every six feet or so or else the line was simply laid on the bottom with a couple of sash weights at each end to hold it down. We would go out at daylight and set the line and we would let it fish for fifteen or twenty minutes and then we would take it up. Sometimes we would set it several times. We would come in about one o'clock in the afternoon, having cleaned the fish on the way in, and then we would have to carry the catch up the cliff and haul it to the station to ship to Los Angeles. We had no ice. Generally a wet gunnysack nailed across the top of the box was the best we could do. It seems to me that the train came through around three o'clock and would get into Los Angeles about six o'clock. Four cents was a very high price which was occasionally paid for the fish. We got better than that for the lobsters. We didn't cook the lobsters ourselves. They were put in wet gunnysacks and taken up to the station the same way and shipped to Los Angeles.

**LA JOLLA
FISH ROUTE**

We set up a route and peddled fish in La Jolla when we moved over there. We also hauled fish over to Sorrento and put it on the train and sent it to Los Angeles.

**KESSLER
MACHINE SHOP
CHARLIE KESSLER**

I left La Jolla in May 1906 and I went to work as an apprentice machinist in the Kessler Machine Company. It was Charlie Kessler's shop. It seems to me it was down on Seventh and I Streets -- somewhere along in there. I went to work for \$4.50 a week and lived on it alone in town. I paid \$1 a week for a room in the old Claremont rooming house. I paid \$2.75 for a meal ticket in a Jap restaurant on lower Fifth Street. I could make that ticket last a week if I didn't eat any pie. Then the rest of my pay went for overalls and such. I didn't have a suit of clothes.

BIOGRAPHY

After my sister had gone to school at Encinitas she went to Los Angeles to get into high school. She worked as a domestic -- in houses, you know -- to work her way through high school in Los Angeles. I don't think she went any further than high school.

My sister got married to a man named Maynard, and in 1908, when I was still an apprentice in machine shops in San Diego and making perhaps twenty cents an hour, her husband deserted her and I had her come down here and live with me. We rented a little cottage down near where the old courthouse was on Union Street and then her baby arrived. So I had all the responsibilities of a married man at eighteen years of age.

My sister kept house for me quite a while. Some years later she married a man named Le Sturgeon. He was sort of a jack-of-all-trades. I provided money for him to start a printing shop and that also gave employment to my father who was living with us by that time. Well, all that went down the drain somehow or other. Ultimately Mary was forced to divorce him -- I guess he got to running around with other women -- I don't know all the facts as I was far away by that time. For a time though they had lived back on the ranch at Merle.

My sister is still living in her house at 1219 Twenty-ninth Street in San Diego. In the later years she became a graduate nurse and worked at the County Hospital for a long time. I think she retired in 1940.

HOWARD IRON WORKS

I worked for Kessler Machine Shop for perhaps six months and then I got an offer of a job with a little more money and work that was more interesting to me on marine engines. It was at the Howard Iron Works and they were building marine engines at that time. The company was located a little west of the Russ Lumber Company -- just south of Market Street not far from the West Coast Gas Engine Company. Then the Howard Iron Works folded and for two weeks I worked in a laundry.

THE LAUNDRY

I don't remember what all I did in the laundry -- anything that was to be done. In two weeks they promoted me till I was getting something like \$15 a week -- which was big money!

GEORGE HENSLEY

Then I got a chance to go to work at something like \$8 a week with George Hensley and Bob Baker. They were in partnership on a waterfront machine shop. I took that job because I was anxious to finish learning my trade and be back in gas engine work. I was quite a problem. A young fellow who would give up good money to go back to that, especially when I had the responsibility of the family.

I worked for George Hensley for several years and I learned more from him than I ever did from anybody. He is really a wonderful man. He is still alive and I see him every once in a while. I'm very fond of George. If he had had the chances that I later had, he would have gone a long way. He knew more about gas engines than anyone I ever encountered.

BAKER MACHINE COMPANY

George finally left that partnership and I stayed on with the Baker Machine Company. Before I'd finished my four years apprenticeship -- due to studying by correspondence courses -- I had gotten ahead and was made foreman of the little shop.

GLENN CURTISS

THE HYDROAEROPLANE

Late in 1910 Glenn Curtiss came out here to perform his hydroaeroplane experiments which he couldn't do at Hammondsport, New York, on Lake Keuka because in the wintertime the lake would freeze. So Curtiss rented a powerboat from the Baker Machine Shop and he also obtained my services part of the time. I worked with him over at North Island and I was present during the assembly and the tests of the first machine that ever got

off the water. I helped modify it and so on -- not the engine though, that was a regular Curtiss engine built in the East. I continued to work a part of the time for Curtiss.

CHARLES C. WITMER

Curtiss had been running a flying school over there and some months later one of the graduates of that school, Charles C. Witmer, came over to the Baker Shop and saw work I was doing on cars. For instance he saw that I had overhauled a big Columbia car with a four-speed transmission with all plain bearings. I had had to make all new bearings for that and new bearings for the engine. We didn't buy them in those days, we made them. Then I tuned it up and Witmer was so impressed that he decided that he wanted me to be his mechanic.

EXHIBITION FLIGHTS

JOHN D. COOPER

Early in 1911, I think it was in April, I started out as motor mechanic and John D. Cooper went along as airplane mechanic. Our first exhibition flight date was in Wichita, Kansas, and that was followed by a long series of flights with Charlie Witmer as the flyer. This was exhibition flying, the term "barnstorming" came later. After about three of these exhibition flights I took over the airplane mechanic job as well as the engine mechanic job and handled them alone.

We didn't fly the plane from place to place. It wasn't capable of flying from one exhibition town to another. We shipped the plane by express. We had to tear the machine down and take the engine out it, pack it all in separate boxes, ship it and then assemble the plane again at the next place. This was a problem because we'd have to change trains in the middle of the night and the sleepy expressmen didn't want to handle the big heavy crates. I found it paid to have a helper with me, preferably one who was big and tough looking and his mere presence would influence the expressmen quite a bit.

NAVY HYDROAEROPLANE

On July 4th, 1911, we flew at Pittsfield, Massachusetts, and Charlie had a bad crash and went into the hospital for about a month. During that time I went down to the Curtiss factory at Hammondsport, New York, and helped deliver to the Navy the first airplane, which was a hydroaeroplane. I went out to help with any engine troubles. I have a logbook of that early plane and my name is down as a passenger several times.

When Witmer got out of the hospital we went up to the big airplane meet in 1911 at Chicago. There I worked almost night and day repairing two Curtiss airplanes that were smashed by other Curtiss flyers.

THE CURTISS HYDROAEROPLANE

Then we went on with our exhibition work in various parts of the country and we wound up spending the winter in Miami, Florida, where we kept the Curtiss Hydroaeroplane on the beach in front of the Royal Palms Hotel and we carried passengers on short ten minute flights. That winter we also had two land planes at an aviation school about six or seven miles out of Miami.

THE GERMAN ZEPPELIN COMPANY

At the end of that season I came down with appendicitis -- peritonitis -- and when I got out I went back up to the Curtiss factory. Charlie Witmer was to take a plane and deliver it to the German Zeppelin Company which was located on Lake Constance in Frederickshaven, Germany. We were only to

be gone for six weeks. Mr. Curtiss said that I would be able to handle it all right and he wasn't going to give me much money because I wasn't well and couldn't work very hard and so on. It was a fact that the incision was still open for drainage and I crossed the ocean that way. We made two or three trips into Russia and into France. We delivered planes to the Austrian government and to the German government and to the Russian government, both in Sevastopol down in the Black Sea and in St. Petersburg, or Leningrad as it is now called.

THE FLYING BOAT HAROLD MCCORMICK

Actually we stayed over there for over a year and then we came back to the United States. Charlie was to be the pilot of a flying boat which had been developed since we had left this country. It was a flying boat belonging to Harold McCormick -- the "Harvester McCormick" not the "Publisher McCormick." Mr. McCormick lived twenty-eight miles north of Chicago at Lake Forrest, Illinois, and Charlie flew him down to his business every nice day and they would land in Grant Park Harbor in Chicago. Mr. McCormick was a very fine man. He told me at the end of the season that he had never heard his engine miss and he laid that to my care of the engine. During that summer I developed some theories and practices of preventive maintenance which later on I developed further.

RUST PREVENTIVES

Mr. McCormick had us take the flying boat down to Florida to carry passengers and make our expenses during the winter. This time we took the flying boat apart and shipped it down. All that winter I had the maintenance job of this flying boat sitting on the beach and working in salt water. We didn't know how to make things so they wouldn't rust and we didn't have any well-developed rust preventives. I worked out some things on my own. I mixed a little machine oil with lead paint so that it wouldn't quite harden and used that quite effectively on some parts; but nevertheless, at the end of the season the ship had to be completely rebuilt because of the salt water action. We took the flying boat back up to the factory at Hammondsport.

THE LANGLEY AIRDROME

We found that they were doing some interesting things that year at the Curtiss factory. They were rebuilding the old Langley Airdrome -- or airplane. Ultimately Curtiss flew it to prove that it had certain inherent stability features. This was done mostly for patent reasons. Curtiss was always busy fighting the rights on the patent situation. I helped in the reassembly of that machine and I saw it fly.

CURTISS-WANAMAKER TRANSATLANTIC FLIGHT

Also at the Curtiss factory they were preparing a transatlantic machine that was financed by the Wanamaker Company in New York. It was to be called the Curtiss-Wanamaker Transatlantic Flight and I believe it was to celebrate a hundred years of peace between the United States and England.

LT. CYRIL PORTE LT. TOWERS

The plane was to be captained by Lieutenant Cyril Porte of the British Navy and he was to be the pilot. Originally, Lieutenant Towers -- later Admiral Towers -- of our Navy was to be the American pilot. Well, it seems that the Secretary of Navy said that if an American went, he'd have to be in command. So that let Towers out because that couldn't be arranged. Hearing this I said to Curtiss, "What you need is a darn good engine mechanic who knows enough flying to take a 'trick' at the wheel." He looked at me kinda funny and presently asked me to take a ride with him up to the neighboring town of Bass. He said, "Were you serious?" And I said, "Yes." He asked, "Can you fly?" and I said, "Ask Charlie." And Charlie Witmer

assured him I could fly, though all I'd ever done was hold the controls a little while in the air. So then I told Curtiss that of course I'd have to have some practice to keep my hand in.

DOC WILDMAN

Right then I got two-and-a-half hours of actual flight instructions in a flying boat under Doc Wildman who was well known here as an early flyer.

Then it developed that the plans for making the plane had changed entirely. Originally it was going to be a tractor-biplane with a single large engine. This large engine was a new type that they'd never built before and the engine had broken up on tests. So the plan was changed to a flying boat with two Curtiss OX engines which they knew all about. They had been building OX engines with 90 horsepower for a year or so.

THE AMERICA

The machine was built and it was called The America and it flew seventy-six miles an hour. In the beginning it would not lift the necessary weight to carry the amount of fuel needed for the flight.

By the way, the flight was no longer to be straight across from Newfoundland to Ireland but it was to go down around the Azores so that it would make shorter legs, or flights.

All that summer we worked making some thirty-two changes in the bottom of the hull before it got off the water with the necessary amount of weight.

By that time in 1914 the war had started in Europe and it was no longer possible to spot destroyers every hundred miles or so along the route and the flight idea was given up. No one made the flight until after the war when there were much better airplanes and engines and instruments available.

CURTISS CAMP

NORTH ISLAND

ROCKWELL FIELD

I came out to San Diego at the end of the summer of 1914. Curtiss wouldn't pay my expenses out but he rehired me after I got here. I worked for two or three months at the hill on North Island called Curtiss Camp. I was mostly working on Army equipment as by this time the Army had a camp there and they had seven or eight planes. It wasn't called Rockwell Field yet. At that time it was still just called North Island.

CAPTAIN COWAN

About the end of 1914 I went to work for the Army as a Civil Service engine expert and I did troubleshooting and the supervision of engine overhaul and so on. Then the Commanding Officer, Captain Cowan, told me that he wanted me to start a school to make better trouble shooters and mechanics out of his MSEs -- that means Master Signal Electricians and it was the rating for their best mechanics, who were enlisted men. Remember this was the Aviation Section of the Signal Corps. At that time there was no Air Force.

MECHANICS' SCHOOL

I had never heard a lecture but I proceeded to prepare and give lectures to these men. Then I organized a school where we took obsolete engines and they were taught how to tear them down and how to put them up and how to test them on a test block and how to shoot trouble on them and so on. I developed regular methods for doing all this. That school grew so that by the middle of 1917 I had classes in engines, airplanes, metal work, woodwork and other subjects and we handled some two hundred fifty men a day -- half officers and half enlisted men.

WALTER FOLKE

I had a number of assistants and one of them was Walter Folke who was an enlisted man at that time.

Then I was ordered back to Washington to go through all the ground schools that I could on the way to see if I could suggest improvements in them. The ground schools were where the flying cadets were taught something of engines and airplanes. They had quite a few of them at state universities -- I stopped at Berkeley and at the University of Illinois and there were several others but I don't remember them now.

MECHANICS' SCHOOLS

I got back to Washington and then they gave me the job of reorganizing five of the large northern flying fields into mechanics' schools. It was the winter of 1917-1918 and was an emergency way to train a lot of mechanics quickly. The fields were located at Rantoul, Illinois; Dayton, Ohio; Minneola; Long Island; Mt. Clemens, Michigan; and Scott Field, Belleville, Illinois.

COLONEL H. B. JOY

In Washington I got the help of Colonel H. B. Joy, who in civilian life was President of the Packard Company. We called into Washington about two hundred fifty Packard and Cadillac service station foreman and some of the best mechanics. In a few days I interviewed all those two hundred fifty men and selected seventy-five men. I sent those seventy-five men up to Selfridge Field at Mt. Clemens, Michigan, near Detroit. Then I called in two sergeants from my school in North Island to come up and help me and we three gave those seventy-five men a three weeks course. Then we split them up into five groups and they became the instructors in the five flying schools -- then taking the best men from the first classes as further assistants. That's the way the thing was built up. At the same time we immediately lengthened the course to four weeks and later to six weeks. Engines were getting more powerful and more complicated all the time. This emergency deal of trying to train mechanics in such vast numbers was an awful undertaking with such a short time to train them. The government was busy training pilots and there had to be mechanics to keep the planes in the air.

The planes used the southern fields during that winter of 1917 and in the spring of 1918 we moved into two big training schools. One was at St. Paul, Minnesota, and one was at San Antonio, Texas -- Kelly Field No. 1. We combined all our training activities into these two big schools. We started to plan a big permanent school of our own down near Greenville, North Carolina, but that never got anywhere before the Armistice was signed.

AIR SERVICE

I think at that time we were still under the Signal Corps. They called it the Air Service next. I'm not sure but I believe it must have been early in 1918 that they called it the Air Service.

I had gotten up to the highest pay of fifty-five hundred a year in Civil Service. I had to go out as a civilian and reorganize these military posts -- and boy, I had some nice problems. But I always had a big long letter with me, dictated by me, telling in detail what I was to do and the letter was signed by the Chief of the Air Services, so I always made the grade.

MAJOR HALLETT

I believe it was in May of 1918 I was commissioned a Major in the Air Service and of course that gave me a little increase in pay. I had joined the Army and took the Oath of Allegiance. Up until then I had not become a citizen of the United States. My father was never naturalized. He said, "Once a Briton, always a Briton." And he said, "I'm no turncoat." Therefore I had that situation to fight. I was supposed to be a citizen when I was scheduled for the flight on The America and I tried hard to get my citizenship through. I had declared my intention when I was nineteen but due to traveling in Russia and elsewhere I never could get witnesses to prove up where I was. So I just couldn't get naturalized. I had had to have a waiver signed by the Adjutant General before I could be employed as a civilian mechanic or engine expert and I had to have a waiver signed by the President before I could be commissioned a Major. After that, why there was nothing to it. One day out at Wilbur Wright Field they called in about a hundred and ten of us and the Judge came out and gave us a nice talk and he handed out the citizenships and that was that!

I left the mechanics' training work in good hands and I was sent out to Dayton to take charge of the engine part of an organization which was checking the aircraft that was put out by the Bureau of Aircraft Production.

BUREAU OF AIRCRAFT PRODUCTION COLONEL T. H. BANE MCCOOK FIELD

We, were at Wilbur Wright Field a double-sized field near Dayton, Ohio. We worked there all that summer and fall and then late that year our organization under Colonel T. H. Bane was given charge of McCook Field which had been run by the Bureau of Aircraft Production. It was a purely technical field for the development of new types of aircraft and engines. The field was located right in Dayton, Ohio. I organized my part of the work -- the engine development laboratories and testing labs and so on -- and I built up another large engineering organization there. We even designed aircraft engines and did a lot of valuable work.

SUPERCHARGERS COLONEL VINCENT GENERAL ELECTRIC

One of the first decisions I had to make was whether to go on with developing superchargers which make an engine develop more power at high altitudes. Colonel Vincent, who had been in charge of that, advised me that he didn't think there would ever be any net gain. Well, I studied the thing for myself and I chose, from the four projects that were started, one of them -- a turbo supercharger which was developed and worked on by General Electric. I could see that there were inherent advantages in using the power of the exhaust to do this work and I knew that we would need the facilities of a company like General Electric to carry it on. That proved sound, and as a result, by the time I left the Air Corps in 1922, we were the only country that had a turbo supercharger, or a supercharger of any kind. We had made so much progress that they kept on with it and we were the only country that had a turbo supercharger at the beginning of World War II.

MAJOR REUBEN FLEET

Major Reuben Fleet was a Staff Officer at McCook Field and he was an old friend of mine. We both resigned from the service the same day, about the first of November 1922, and Major Fleet said to me, "George, I bet you in a few years I'll make a million dollars." And I said, "Well, Reube, I expect you will." He was a very effective type of individual. Sure enough, years later I was in Detroit with General Motors Research Laboratory and I got a long distance call from Buffalo, New York, late one night and Reube said, "George, you remember old man, I told you I'd make a million dollars."

Well, I have made it. You come over here and I'll show you the books." So the next time I went through Buffalo I stopped in and he showed me the books.

I don't know what he did immediately after resigning but it wasn't long until he started an airplane company up in Buffalo and then he bought out two or three other small companies and got bigger and that's the way he made his million. Then he moved out here to San Diego and got real big. Later on I worked for him during World War II at Convair. Major Fleet is still alive and he really is a great character.

GENERAL MOTORS RESEARCH LABORATORY MR. KETTERING

When I resigned from the service in 1922 I went to work under Mr. Kettering who was in charge of General Motors Research Laboratory which was located then in Dayton. First, I worked in charge of a study of mass plans of transportation -- in other words, motorbuses -- and designed some interesting experimental motorbuses which were successful but were not produced.

Then we moved to Detroit with the General Motors Research Laboratory and at that time I was put in charge of the development of new types of engines and I also handled a number of other interesting research developments. This was the most interesting and altogether the best job that I ever had. I again had to build up a large engineering organization. We later developed the diesel engine which is now produced by General Motors.

I worked for General Motors from 1922 until the spring of 1937. My health had got so bad by then that I felt I couldn't do justice to the job and so I resigned and moved out to Tucson to try to recuperate my health. The General Motors Corporation didn't accept my resignation for about eighteen months -- until they were sure that I couldn't get back.

CONVAIR

I stayed in Tucson, summer and winter, for about three years and then in 1940 I came back to San Diego and bought this house on Mt. Helix. In 1942 I went to work for Convair as a consultant under Major Fleet. I was only able to work two or three days a week and I did this until the middle of 1945.

I don't do anything at all now. My hobby is photography. And of course I've been keenly interested in this new Corvair car and I have one of them. It's a great job!

LODGES CHURCHES

I never joined any lodges. I was a Deacon in the Presbyterian Church in Birmingham, Michigan, while I was living there. I kind of dropped out then and I'm not affiliated with any local church.

BIOGRAPHY

My first marriage was in 1915 when I married Grace Wixom of Hammondsport, New York. We had three children. The daughter was born first and her name was Lucile. She is not married.

As I understand it, she is now working in Honolulu but I don't know what type of work she is doing. The oldest boy was named Charles Hallett. He was killed in World War II. The youngest boy was named Fred and he is working for Lockheed Aircraft Corporation in Los Angeles as a technical writer.

My first wife and I were married from 1915 until 1939 and then there was a divorce and a lot of bitterness.

Then about six months later I married my present wife and that has been a highly satisfactory marriage. She was Edith Smith, a widow, and her maiden name was Daugherty. She was born in Indianapolis and raised in Portland, Oregon. She and her first husband had owned newspapers in Virginia, Minnesota, and Oneida, New York. Her husband died. We met in Tucson and we were married in 1940. We have no children by our marriage but she has two children who mean a great deal to me. The daughter is the eldest and her name is Josephine. She married Vernon Smith, so she is Mrs. Smith and she didn't have to change her name. The son, Winthrop W. Smith, married Barbara Gleason. He is Chief Engineer and Sales Manager of the North Burbank Plant of the General Electric Company.

GENERAL MOTORS

Another incident I remember was in about 1934 or '35, a little past the worst of the Depression, when I was working with General Motors. We had gone through the single-cylinder stages of the diesel engine development and down at the Winton Engine Company, which General Motors owned down in Cleveland, Ohio, we had built a twelve-cylinder, V-type engine intended for a submarine. We had run successful eight in-line engines, four-cylinder engines and single-cylinder engines of this type, but this twelve-cylinder engine gave us a lot of trouble due to pipe organ effects in the intake manifold and the exhaust manifold. It took some months of research to iron that out, but finally the engine was running well and the Navy high brass was coming the next day to witness some tests on this new type diesel engine.

MR. KETTERING

That afternoon Mr. Kettering called us from Cleveland and said, "George, better bring some engineers and come down here fast. The engine is running badly. The exhaust is black. And we've got to show it to the Navy officials tomorrow morning." So we flew down immediately and worked all night. I reasoned out what the trouble must be and the men found it was that and we were able to correct it. It was a matter of a hurriedly designed spring being too weak and taking a permanent set. All we had to do was put a washer four-thousandths of an inch thick under each of these springs and that fixed it. It would give the springs the necessary tension again for a short time at least and we would fix it later by designing the springs so that it wouldn't occur.

MR. CODRINGTON

The afternoon before the tests Mr. Kettering, our boss at the Research Laboratory, and Mr. Codrington, President of the Winton Engine Company, were walking down the aisle between the engines which were on test. I heard Codrington say to Boss Ket, "Let's push the blankety-blank two-cycle" - - meaning our diesel -- "off the dock and build some good old four-cycle engines." Well, of course Mr. Kettering didn't agree and the next morning after the engine was running perfectly again the same pair walked by the engine and I heard Mr. Codrington say to Mr. Kettering, "By gosh, Boss, we've got the world by the tail on the downhill pull." The point that sticks in my mind is all this difference from black to white made by a washer four-thousandths of an inch thick. But remember that doesn't illustrate how much tension and worry was involved in all this business.

BILLY MITCHELL

Billy Mitchell was a wonder. He would never ask any of his men to do anything that he wouldn't do himself. The public rarely heard all about the things that he did.

THE BOMBINGS

For instance when the Air Force bombed the captured German battleships to demonstrate what it could do, there was a lot of skullduggery about the way the Navy, who had charge of the tests, had planned the tests. In one of the first tests the orders were that the Air Force was to drop light bombs first and then pull back and let the Navy Brass board the battleship, or whatever was being bombed, and they would examine the damage. Then the Air Force was to come back and drop the next size larger bomb and again let the Navy boarding party go in and see what damage had been done and so on. In this way it would take the Air Force all day to sink the vessel and then the Navy would say, "You see it took them all day to sink it."

So the second time they tried that Billy Mitchell fooled them. He sent his men out with the biggest bombs first and instead of dropping them on the deck as they had been told to do, they dropped the bombs close alongside and the vessel was sunk in fifteen minutes. That made the Navy mad.

In the last test of that kind the Navy specified that the bombs would have to be dropped from twelve thousand feet. The Navy knew very well that the Air Force didn't have any bombers that would take two-thousand pound bombs up to twelve thousand feet. But what they didn't know was that we had six Martin bombers equipped with turbo superchargers and they went out and they did just what the Navy had specified and they sunk the battleship real fast.

THE SUPERCHARGERS

Billy Mitchell used to come out from Washington to McCook Field in Dayton and bring his best pilots with him and they would test fly all the planes that we had under development. They would usually take out the German, Italian, French and English planes that we had there and compare them with the latest things that we had developed as to maneuverability and so on.

Mitchell had not been very much interested in the supercharger. Later on when I had the supercharger in pretty good shape we got two identical fighter planes of American make, one with supercharger and one without, and we got Mitchell to fly one of them and to put one of his best pilots in the other one. On the first flight Mitchell flew the un-supercharged plane and found that he couldn't get anywhere near the other fellow after twelve thousand feet. Then they came down, changed planes, and went back up and Mitchell found out what he could do with the supercharger and he was on our bandwagon after that. We sold him!

At the end of one of these meetings down in Dayton, Mitchell would call us into the assembly room and give us a briefing on the way he thought airplanes would be used in the next war and what characteristics he thought they ought to have. Then together we would outline the performance specifications for the various types of planes he thought would be needed. In that way we made a lot of progress on the development of planes and their equipment. Mitchell deserves a great deal of credit. Like anybody else, he was not a hundred per cent right, but his percentage was mighty high.

V-TYPE ENGINES

There was one amusing incident that appeals to my vanity. I was busy developing light, high-speed, V-type engines in order to have lighter power plants. One day General Mitchell was in Colonel Bane's office and Mitchell said, "Why in the blankety-blank isn't Hallett developing a good six-cylinder in-line engine like those good German engines?" And our Commandant, Colonel Bane, said, "Well, I don't know." And Colonel Bane rang me up and said, "Hallett, why aren't we developing a good six-cylinder in-line engine? And come on over here!" So I went over there and explained to

General Mitchell why I wanted to make fundamentally lighter engines. You couldn't make a long six-cylinder engine light, but if you made an eight-cylinder or twelve-cylinder engine, the long heavy crank shaft and crankcase would be utilized twice as much by two rows of cylinders and you had a lighter engine per horsepower. Well, Mitchell kept on talking about those good German engines and finally I said, "Well General, the Germans didn't win the war you know." And he said, "Well, by God, Hallett, I guess you're right."

About six months later we received some information from Europe and found out that during the last year of the war the Germans had been trying hard to develop light, high-speed, V-type engines. So Mitchell agreed with me the next time he came out. Oh yes, Mitchell would change his mind.

COMMANDING OFFICERS

In 1917 when there were a lot of large newly organized flying fields the Air Service promoted young flyers to Majors and put them in command of the fields. Then the Air Service concluded that these young Majors weren't good enough disciplinarians and decided to call in some old-line Colonels, mostly from the Cavalry, and put these men in command of the flying fields though they knew nothing of aviation. In some instances these were good enough men that they learned quickly and made a success. General Fechet, for instance, was so good that he ultimately became Chief of the Air Service. But there was another man on the other extreme who was pretty dumb. On one occasion this Commanding Officer was walking through the aero repair at Wilbur Wright Field with a young engineering officer who was in charge of the work. The Colonel saw half a dozen fuselages of the training planes that they were using there -- all of them with the lower longerons broken upward -- and he pointed his baton over there and said, "Lieutenant, what's the cause of that wreckage?" And the lieutenant said, "Bad landings, sir." So the Colonel walked back to his office and got out an order: "Beginning this date there will be no more bad landings." This is a fact. I have seen the original of this order.

JET ENGINES

While I was at McCook Field and we were developing turbo superchargers, which include nearly all the technicalities of jet engines, I asked the National Advisory Committee for Aeronautics in Washington what they thought of our developing a jet engine. Their reply was that jet propulsion was far too inefficient a means of propelling an aircraft and they thought it of no interest. This was about 1921 and we did not start a project to develop a jet engine or study to see if one could be developed.

The interesting thing about this is that while that sounds pretty funny now, at that time there was no way in sight to build aircraft fast enough to utilize jet propulsion. Jet propulsion is not much good below three hundred seventy-five miles an hour and we could see no way to build anything in an airplane that could fly over two hundred miles an hour. So they were right at that time.

Oh so many things weren't known in those days -- we couldn't have landed a plane that flew that fast -- we couldn't have navigated it -- we didn't know enough about landing gears -- we didn't know enough about stresses or anything to build a plane fast enough to utilize a jet engine. It had to come gradually. Eventually we got a plane designed and shaped so that it could take that speed. We had the idea but I have always wondered why this country let England develop the first jet engine. We had all the "know how." Someone over there just had the "go-after it."

END OF INTERVIEW
