

A RADIO AMATEUR IN WORLD WAR I

By C. D. Tuska
First Editor of QST

The May, 1917 issue of QST, the War Number, is the starting point of this story. Amateur radio stations had been closed for the duration by Presidential Order. The Army and Navy needed a large number of radio operators, and an article in the July QST carried the headline, "Wanted: By Uncle Sam, 2000 Amateur Wireless Operators." The Navy told us that QST's recruiting efforts were most effective, and I had occasion to observe a small sample of the results. Eight amateurs in a dismantled radio shack in Illinois discussed the QST article, and 7 of the 8 enlisted in the Navy. The 8th enlisted in the Army. We'll hear more of him later.



Fig. 1. Clarence D. Tuska, taken about 1960.

By the end of July, QST had just about run out of money and had about used up its credit, and its Editor and factotum wanted a more active part in the War effort. QST was put to bed, and its editor left for Washington.

The Aviation Section of the Signal Corps said that it could use me and, because of my radio experience, it would commission me. There was a temporary restriction, though; would I please go to work as a civilian aeronautical and mechanical engineer? Could I start immediately? Would minimum pay be satisfactory? All the answers were, "Yes, sir." Little did I realize how minimal was minimum pay until I started to pay for meals at Washington wartime prices. They told me finding living quarters would be difficult and I had better start looking. I was handed a list of "available rooms," all within walking

distance. I walked first to the nearest; it was taken. I walked to the second; it was taken. I walked to the third; it was taken. The same sad story up to the sixth on the list. By then I was very tired, very warm, and very discouraged. My face must have reflected my feelings, for the sixth landlady said, "I do not have any regular room. I do have something I ordinarily would not rent, but you are welcome to look at it."

I have a vivid recollection of that "room." When the house was erected on Maryland Avenue, N.E., the builder found he had space for a most excellent hall closet on the third floor. One of the closet walls faced the avenue and was just wide enough to include a window. The landlady discovered that the closet was almost large enough to include - when exactly positioned - a small cot and a small chair. But then the door was inoperable because it opened inward. Fortunately the solution was very simple; just remove the door and substitute a curtain. Naturally the curtain was better than the door because occasionally air flowed through.

Several years later I was privileged to read Sir James M. Barrie's famous lecture on "Courage," and I doubt if many readers were better conditioned to appreciate his words. In part, at least, they applied to my stay in Washington:

"...the greatest glory that ever came to me was to be swallowed up in London, not knowing a soul, with no means of subsistence, and the fun of working till the stars went out. To have known anyone would have spoilt it. I did not even quite know the language. I rang for my boots, and they thought I said a glass of water, so I drank the water and worked on. There was no food in the cupboard, so I did not need to waste time eating. Those were the days. Too good to last. . ."

Major John F. Curry, later retired as Major General, directed me to prepare complete plans for a school for radio operators. How many students? No one knew. Prepare plans on the basis of a hundred. That can be multiplied by the eventually authorized number. There were plans and specifications on paper covering everything except buildings, clothing, and food. The Major must have read my recommendations because he asked me if I had not overlooked masts for aerals. I explained that radio amateurs could get things going by just throwing aerial wire into the nearest tree. He smiled and asked if I had ever been in Texas. Washington, D.C. being my farthest south, and Buffalo, N.Y. my farthest west, I answered truthfully, "No, sir." He told me trees were mighty scarce around Houston, and how right he was!

Actually, poles for aerals were my smallest worry. The greatest need was for a staff of competent teachers. Next was for some apparatus, preferably Signal Corps transmitters and receivers, storage batteries, tools, and some devices to teach code. As I worked on the paper plans, little did I realize that I would be the one to give birth to the school and to breathe life into it. I asked for authority to find and engage 10 or 12 experienced radio men for the first teaching staff. Finally the recommendation was approved, and I received orders to proceed to New York, find the men, and have them processed through the established Army organization.

By a stroke of good fortune I arrived in New York on the evening of a meeting of the Institute of Radio Engineers. The Secretary announced that C.D. Tuska was looking for experienced radio men who would eventually be commissioned in the Signal Corps, but would first be assigned to the Radio School as teaching cadets. I had just received my own commission as a Second Lieutenant, Aviation Section of the Signal Corps, Officer's Reserve Corps, of the Army of the United States. I had taken the oath of office before leaving Washington, quickly purchased a uniform in New York, and donned it for the occasion and for the duration.

Candidates were told to report to me at the Yale Club, where a friend had put me up, starting at 9 A.M. the following morning. The response exceeded my ability to interview quickly, and I hurriedly devised a written test. It included 7 or 8 situations for which I thought I knew the answers, and I designed questions to solicit those answers. I also quite deliberately threw in a couple of questions which probably had no answers, but the way the candidates tried to answer them told me much. The unanswerables were something like this, from an entirely different field: "You are the engineer in the boiler room of a ship, the fires are going full blast, the water gauge shows no water in the boiler, the water feed valve is jammed, the safety valve is stuck and can't be budged, steam is escaping where it shouldn't, and there are threatening noises. What would you do?" I am told that about the only sensible answer is to sound the alarm, run to the ladder, go up as fast as possible, dash across the deck, clear the rail, dive, and then swim like hell for safety. You get the idea.

Some of the "commission seekers" took one look at the questions, handed back the sheet, and left. This saved much time. Others settled down and answered the questions with dispatch. I finally selected and approved nine. These, plus one I did not really approve, were sent to the Army Examining Board. The one not quite approved was rejected, as I believed he would be, along with one other. The remainder passed physically and mentally and were accepted. I went to bat for the rejected one because I thought he was the best radio man of the lot. But what could a Second Lieutenant do when two Captains rejected the candidate on psychological grounds? I explained that the man's duties were to teach radio, for which he was extremely well qualified. They did not question the expert qualifications, but carefully explained that he was to be commissioned, he might be at the school for the duration, and he might have to lead men in battle, and for that he was not qualified. The answer was a firm "No."

When I returned to Washington, I learned that Major Curry had been promoted to Lieutenant Colonel, ordered to Ellington Field at Houston, Texas, and had already left for that post. It was only a few days before I received travel orders to report promptly to the Commanding Officer, Lt. Col. Curry, at Ellington Field. How well I remember the event. I reached Houston the day before Christmas, further from home and friends than I had ever been. My orders were clear, as most travel orders are. So out to the Field I went, and promptly! The Officer-in-Charge explained that they did not expect me until after Christmas, that the Field was not quite ready, the Quartermaster's office

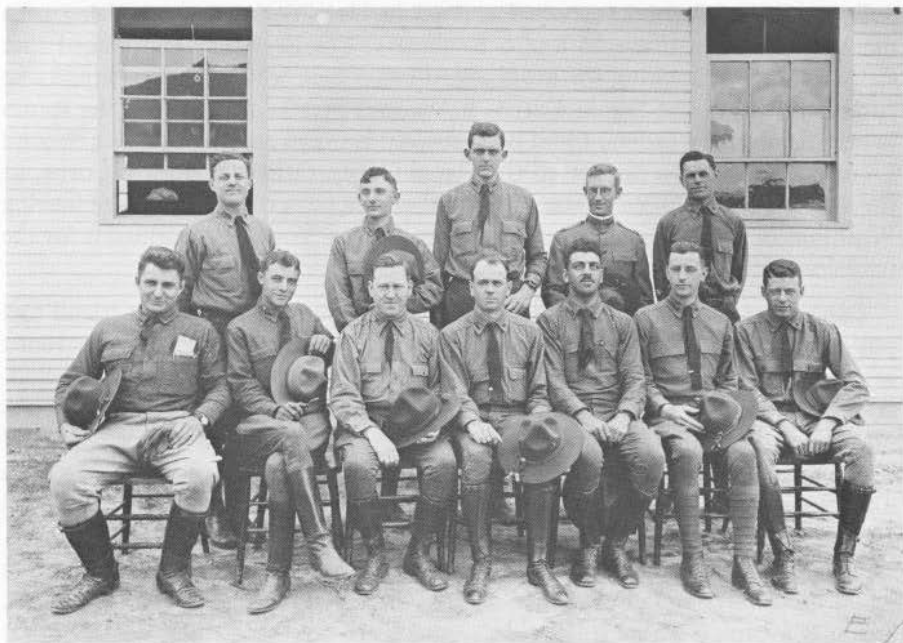


Fig. 2. Air Service School for radio operators, Ellington Field, Houston, Texas, at the time of the story. In the front row, seated 4th from the left, is Elmo Pickerill, and on his left is Clarence Tuska.

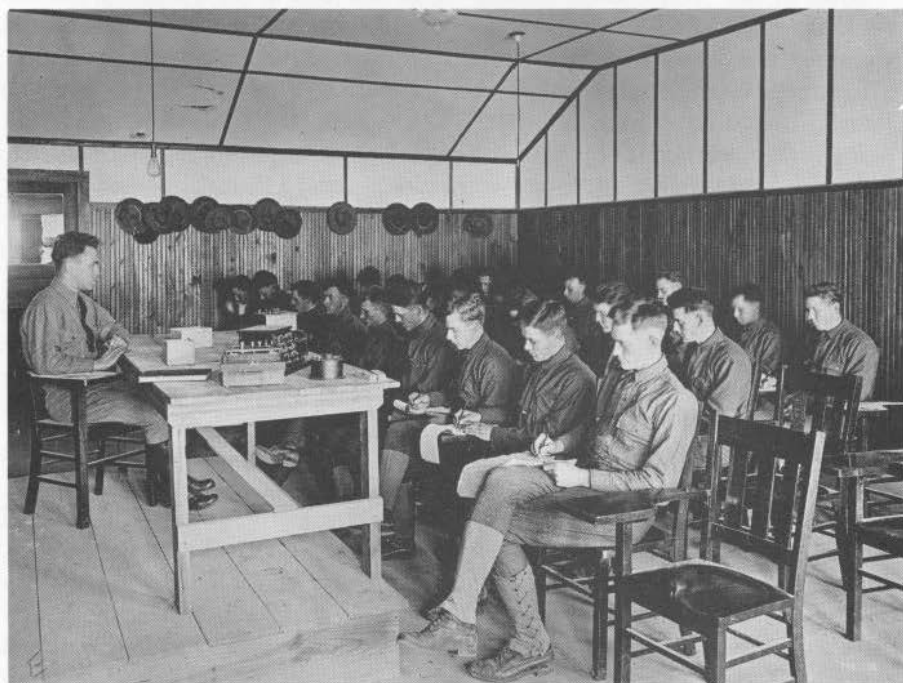


Fig. 3. Radio theory class at Ellington Field.

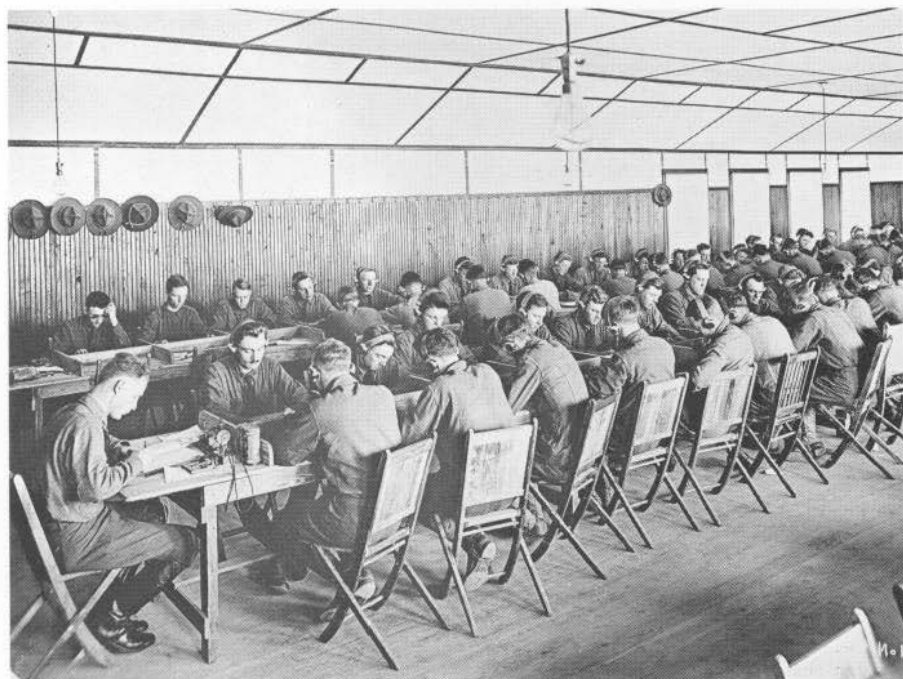


Fig. 4. Code class at Ellington Field.



Fig. 5. Setting up a portable wireless installation. Note the row of "dummy" horses in the background.



Fig. 6. Field practice copying wireless code signals using the SCR-54. At the left is the BC-14 receiver unit, and at the right a vacuum detector using a VT-1.

was not open, there were no sleeping accommodations, no Officers' mess, and finally I might as well go back to Houston and report back the day after Christmas. Have you ever tried to pass a whole day, let alone Christmas, in a strange city with nothing to do except sleep, eat, and read the newspapers? Eventually the day ended but it must have been 72 hours long, certainly not the conventional 24.

Ellington of 1917-18, located between Houston and Galveston, was a brand new two-unit field. The actual flying fields were each one mile square and located side by side. Along one side of each field were hangers for the training planes, mostly Curtis Jennys with 90 horsepower OX motors. Next came the main street, with barracks and other buildings strung out for nearly two miles. Headquarters was about midway in the length of Main Street, and adjacent to it was a good size building with several large rooms and a number of smaller ones. One of the largest was to be used for teaching code, while the smaller rooms were for general instruction in technical and military matters, and for laboratory use. Thus the school had appropriate space. Our cadet instructors began to arrive; now we needed equipment and the students, who would arrive in due course.

As we scrambled for supplies we organized the teaching staff. Those responsible for code designed their own system and built two code tables. A wiring

diagram reminds me that each had 40 student spaces, each equipped with a telegraph key and a set of headphones. The instructor's position included a battery operated buzzer, key, jacks, and a multiple position switch. The instructor could telegraph to all 40 positions, or selectively call any position. . . a nice device to make sure students kept awake! I cannot recall when or how they got their hands on so many keys and headphones at a time when most gear was "on order."

It seemed ridiculous that we should be frustrated by a complete lack of radio apparatus. Armed with the names of several radio amateurs, I selected first the name of James Autry, Jr. of Houston, went to his home, and explained that I would like to borrow his radio equipment for Uncle Sam's use at the Radio School at Ellington. I offered to give him a receipt for the gear. He not only had no objection, but offered to help set it up. Later I explained to the Commanding Officer what had happened, and he was so pleased that he appointed 16-year old Jimmy Autry as a radio consultant. Thus recognized, Jimmy could come to the Field at will and even get an airplane ride, which was one of the purposes of the appointment, and a most dangerous award, if you ask me now.

The Autry equipped station was operated regularly by our school personnel. We copied the 10 P.M. press, often through atrocious static, and put a typed copy at the C.O.'s place in the Officers' Mess so he could read it at breakfast. Once we passed on a weather bulletin about an unexpected freeze in our section of Texas. On the strength of the bulletin, the C.O. ordered all airplane radiators drained. The freeze came, and radio was given credit for saving the planes from possible serious damage.

At long last a ship docked at Galveston with an abundance of radio gear for all of the air fields within trucking distance. We received our share of SCR-54 receivers, SCR-65 transmitters, SCR-55 amplifiers, AR-3 antenna units, and much miscellaneous gear. Space does not permit me a description of the apparatus, which was designed for short-range operation and rough handling, and was pretty crude by the amateur standards of the day. That cavalier judgement of a World War I amateur was repeated by an amateur of World War II. It happened this way: Our own General Sarnoff and General F.N. Lanaham of the British Army decided to inspect the communication system readiness for the D-day invasion. The high point of the inspection was aboard the U.S.S. Ancon, which had a vast electronic system designed to take over communications if necessary. The visiting brass was conducted through the ship by a young signal lieutenant. In the main station there were long lines of radio receivers, many of which were made by RCA. It was natural of Sarnoff to inquire, "Which of these receivers do you consider best?"

"Not one of them worth a dime, sir", the lieutenant replied, "except this one which I built myself." In telling this story General Sarnoff said there was a roar of laughter, but the young man, to his credit, stuck bravely to his verdict. Then the General noted that it is typical of radio amateurs to believe that only their own handicraft is ever good enough, and "quite often they are right."

Returning to the 1918 apparatus: its principal purpose was to send signals from an airplane to a ground station to direct artillery fire. The ground station signaled an observer in the airplane by a visual code using several three-by-ten foot cloth strips. Generally the plane was flown toward the artillery battery, radioing the battery to fire just as the plane made a turn toward the target. An observer in the plane watched for the shell bursts around the target; then the plane was turned promptly toward the battery, indicating if the shells fell long or short, or right or left of the target, and about how far off target. The necessary gun corrections having been made, the progress continued until the target was hit.

A well-trained crew with good teamwork was a must. We simulated battlefield conditions and trained the men to install equipment and operate under abnormal conditions, such as bad interference, weak or fading signals, faulty gear, and to quickly make any necessary adjustments or repairs.

During the short time before the school was ready to receive students (they either enlisted or were drafted), they were sent to Kelly Field, San Antonio. There were thousands of men of many different skills there in early 1918, and from these I was ordered to select the first group for our radio school. When I went to San Antonio for that purpose, I found the classification records were somewhat less than complete and therefore decided to interview men whose records indicated some possibilities. I looked first for radio amateurs, second for telegraph operators, and finally for those who had some qualifications for the job.

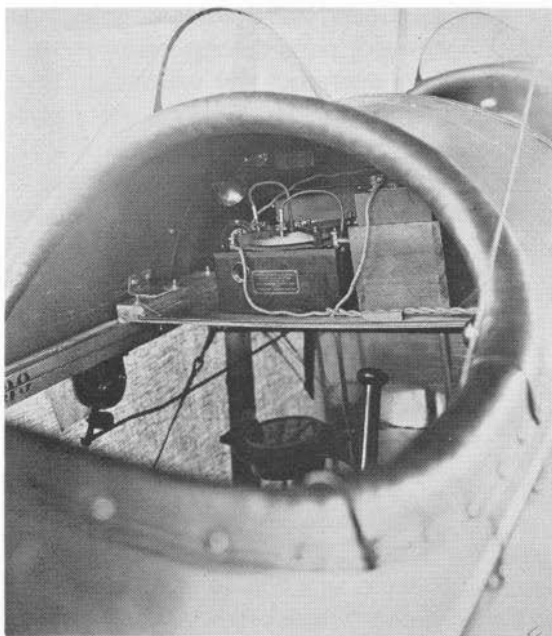


Fig. 7. Airplane spark transmitter BC-15A installed in the rear cockpit of an observation plane at Ellington Field. The complete unit is the SCR-65.

Among the amateurs interviewed, the "eighth" amateur, already mentioned, appeared. He was none other than K.B. Warner. When the selected group was transferred to Ellington Field, Warner was made an instructor, and a good one he was. He was soon made sergeant. Later he was transferred to Officer's School and commissioned after completing the course. I remember writing to Hiram P. Maxim that I had found my successor as Secretary of the ARRL and Editor of QST. After the war, Warner came to Hartford and became the Secretary and Editor as planned. Our friendship, which started at the school, continued until his death. Of all the students, none made a greater impression on me than K.B. Warner, who was a dedicated amateur from start to finish. While there were many others in the school entitled to honorable mention, for fear of skipping some, I shall not name any.

When things were running well at the school, a trip to San Antonio and Waco in search of more qualified students was required. I had a happy idea; I explained to Colonel Curry that if the trip was made by airplane, one of our pilots could have a cross-country training flight of nearly 700 miles, and as a passenger I could get the job done quickly. The Colonel approved but said the only available plane suitable for the trip was a little known and little used L.W.F. Although he was an experienced flyer, Lt. Chase, who was chosen as pilot for the trip, was not familiar with this plane. The L.W.F. had a long, slow gliding characteristic. Chase wanted to take a few hops in the plane to get the feel of it. This he did.

A Texas map will show that Houston, San Antonio, and Waco form roughly an equilateral triangle, whose sides are approximately 200 miles. In 1918 most cross-country flights were made by following railroad lines or other determinable landmarks. Almost no cross-country flying was done using compass bearings because there was then no good way of determining drift due to indeterminate cross winds.

After lunch we set out boldly with some maps and some hopes that we could make San Antonio before nightfall. We flew for what seemed a long time, but we had not picked up the railroad tracks and I thought we were seeing too much of the Gulf of Mexico. The ground underneath was most inhospitable; no sign of a human, a highway, or a house. Finally we sighted a town, but could not identify it. Chase decided we had better find out where we were. Landing in a field close to town, we learned that it was Gonzales, some fifty miles due east of San Antonio. Furthermore, the railroad extended in an almost straight line to San Antonio; this seemed like an easy flight, so we took off. After circling the town to gain altitude, we could see the railroad and also that the sun was about to set. Lt. Chase concluded that it might not be healthy to fly over a strange city looking for a strange airfield after dark. We landed again near the town as the sun set.

This time there was a large turnout of townspeople to see what happened to be the first plane to land locally. A voice of authority asked where we had come from, where we were going, and what we were going to do. It was the Mayor of Gonzales. We explained and indicated that we would stay overnight, leaving at sun up. He offered to take us to the hotel. When we explained that

we could not leave the plane unattended, it being Government property, he offered to station a guard for the night. Chase, who outranked me, accepted the offer and left with the Mayor in the latter's car. I did not mind being outranked because that enabled me to cast my lot with two delightful young ladies, who just happened to be nieces of the Mayor. As they drove me to the Hotel, I somehow arranged a double date for the evening. That led to an offer to take us back to the plane right after breakfast.

The next morning, after thanking the guards and the girls, we warmed up the motor, waved goodbye, and took off in a low overcast. Flying just below the overcast and within easy sight of the railroad, we soon approached San Antonio. Lt. Chase noted that some of the taller buildings were partly in the fog, and decided wisely to land on the parade grounds at Fort Sam Houston. The landing itself was uneventful, but something was leaking! The L.W.F. fuel tank was just behind the engine, with a pressure feed to the carburator. The tank had sprung a leak and gasoline was being sprayed all over the motor. We both wondered then, and probably many times since, what kept us from catching fire or exploding. One sensible answer might be a special angel just assigned to watch over flyers; a sort of anti-gremlin.

My work required the better part of two days, giving Chase plenty of time to locate a mechanic who patched the tank. We finally took off to fly north to Rich Field at Waco. This proved to be the one uneventful leg of the flight. Again my work took two days. The morning of our departure was most miserable because of fog and low clouds, and we had to fly at 1200 to 1500 feet to keep within sight of the railroad tracks to Houston. The forward visibility was extremely low. I had just begun to think that only we were foolish enough to fly cross country in that soupy weather, but how wrong I was! Suddenly a plane heading north, at our altitude and using our failway tracks, broke through the clouds. Lt. Chase dove and veered to the right. The other plane? I have often wondered if the pilot even saw us. He kept right on course and disappeared as suddenly as he had appeared.

Eventually the sun broke through, and flying became enjoyable. In perhaps an hour we should be able to see Houston, and Ellington Field would be only minutes away. We relaxed, and so did the motor. It sputtered and quit. Lt. Chase, having the choice of several empty fields, made a perfect dead-stick landing in the nearest. By that time he was tired and too disgusted with the plane even to consider looking for the engine trouble. Presently he hitched a ride to the nearest telephone, called Ellington, described our location, and requested that a mechanic familiar with the L.W.F. be flown over. Later that afternoon a plane with the mechanic arrived and landed along side the crippled craft. He quickly spotted the trouble; a pressure relief valve in the tank had failed but was easy to repair.

Chase said he would fly the L.W.F. back to Ellington, but to play safe he wanted the mechanic to accompany him, so I switched to the other plane. Late in the day both planes got off safely, but this time I was in the front seat of a Jenny, flying with an unknown pilot. By the time we arrived over Houston it was dark enough for street lights. We thought we were heading directly for

Ellington, but instead of sighting the field, we found ourselves over Goose Creek. If you are not acquainted with Goose Creek, let me tell you that it is no place over which to be lost, especially at night!

The pilot throttled back the motor and shouted, "How much gas is left?" The gasoline gauge was located halfway between the windshield and the engine. I could see its outline but could not read the indicator, and I had no means of illuminating the dial. Things looked black in more ways than one. Praying for sufficient gas, the pilot had a happy idea; he banked and turned for Houston, whose night glow could easily be seen. Once over the city, he was able to spot the Interurban tracks which were very near Ellington on their route to Galveston. Following the tracks, we soon picked up the night lights at the field.

Now we ran into a new set of troubles. Students were being trained to fly at night. Their planes had red and green wing tip lights, and there were colored signal lights on the field. Eight planes circled the field, taking turns landing and taking off in response to signals from the ground. We could see the lighted planes but they could not see us. My pilot did not panic because he knew what to do. Putting the plane in a tight circle outside the paths of the lighted planes, he kept gunning the motor. The irregular sounds reached the ears of the ground crew, who realized that someone up there was in trouble. The crew put on all their red lights, which I learned later was the signal for all planes to stay aloft except the one in trouble. My pilot guided our plane under the circling students and made a perfect landing. That special angel was with us, but was he watching over Lt. Chase? He had not been heard from. I waited awhile, and finally went to bed, but I could not sleep.

At least I should have sung that famous war ditty, "What's the use of worrying, it never was worthwhile", because Lt. Chase appeared the next day, having landed at Camp Travis and spending the night in comfort, albeit worrying about us. Before closing, may I tell briefly of one more flight that was the antithesis of the one just described, a one-way trip if you please.

The Signal Corps ROTC unit at A. & M. College Station, Texas wanted six small ammeters, which we could spare from stock. Colonel Curry advised me to learn to fly, on the grounds that I would be flying with trained and partly trained, and good and poor pilots, and an emergency might arise when I could have a pressing need to know how. I had followed his advice as time permitted, but needed more training. Therefore I decided that flying the meters would expedite their delivery and would provide me with an opportunity for cross-country flight training. My roommate, Lt. E.N. Pickerill (who, by the way, was the old-time commercial operator) also wanted to fly to College Station.

We picked two young flyers as our instructors. Looking back, I believe it is proper to say that they were long on flying skill and short on mature judgement. My instructor sat in the front seat so I could have the benefit of the instruments in the rear cockpit. Paying no attention to my flying, he spent the time reading a magazine and munching on Graham crackers. When we arrived at College Station he took over. There were excellent big fields near the Cam-

pus, but not withstanding these, he elected to land on the Campus. This was not impossible, but just tremendously impractical. Even with the existing headwind, we had a safety factor of less than one. With extreme skill my pilot cleared the roof of the YMCA building by, I estimated, a neat three feet. He would undoubtedly have hit the trees at the far side of the Campus but for the headwind and some alert young men, who ran out, grabbed the wingtips, and dragged us to a halt. Not to be outdone, Lt. Pickerill's pilot accepted the dare and did the same thing with the same skill and the same luck.

It was some time before we were ready to start back. The headwind which had helped us in had shifted and was blowing across our only path out. Hind-sight tells me that the Campus was much too small for a Jenny with a 90 HP engine to take off, even under reasonable wind conditions. Nevertheless, my pilot had the plane pulled back until its tail just touched the wall of the building we had hurdled coming in. The plane was held back until the motor was warmed up and running at full throttle. At a signal, the holders let go, and we bounced along on a no-turning-back course with the cross wind drifting us towards some trees on our right. The pilot held the plane on the ground until the very last moment and then eased back on the stick.

We took off and almost cleared the trees at the end of the Campus. I have never decided if the plane stalled, or if the trees wiped off the elevator control wires. By the time we crashed, I had pulled off my goggles, closed the throttle, and opened the ignition switch to minimize the chance of fire. The plane was literally folded up around the front cockpit, and the pilot was trapped in his seat. I could not pull the fuselage apart to get him out, and he yelled he was being scalded. Hot water was pouring on him from broken connections. I really expected the wreck to catch fire, but that Guardian Angel must have been hovering over us.

It seemed like a long time, but probably the dust had not settled before spectators came running to us and got my companion out. It was about six or seven years later, as I walked out of Hudson's Dept. Store in Detroit, when a stranger stopped me and said, "You don't know me but I remember your airplane crash at College Station." Perhaps 19 years after the event, I was working in the RCA Patent Department in Camden in Building 5. One day, "Doc" Tolson walked in with an old newspaper clipping with a picture and an account of the crash. He had not only been at the College but was one of the first to reach the plane to help in the rescue effort. You may well wonder why "Doc" is dead and I am alive.

The second crew wanted to try the take off, I suspect to prove it could be done. I had other ideas and prevailed; an enormous field lay just beyond where we were and only a few obstacles intervened. By waiting until morning, I thought we could get enough help to get the plane over to the larger field. With noticeable reluctance, the pilot agreed. That night both instructors enjoyed a college dance, so mine could not have been hurt much after he dried out.

In the morning willing hands boosted the plane over the obstacles and on to the nearby field, which I estimated to be about one mile on each of its four

sides. There was a single large tree about in the center. The wind was blowing toward that tree, which loomed large even at that distance. Since the standard rule was to take off into the wind, I asked Pickerill's instructor if he should taxi down wind and take off toward us. Perhaps I should have kept my big mouth shut because he allowed with such a big field it wasn't necessary. I remember shaking my head.

He was right. He did get the plane off the ground, flying with the wind! And, yes, you've guessed it - he hit that one tree and completely ruined the plane. Again that overworked Angel was there so no one got hurt. Pickerill liked to argue later that theirs was a better wreck than ours. And well he might argue, as neither of us had to answer to the authorities. Moreover, we were not called as witnesses, and we never heard if our instructors were slapped on the wrist or grounded for a short period. As taxpayers, you may decide it was a most expensive way to deliver meters. A bureaucrat might say the meters were delivered with great dispatch, and a humanitarian perhaps declare that lives were saved by eliminating a couple of underpowered and therefore dangerous airplanes.

Shortly after our return from College Station, I received orders to report to Washington by the way of Lake Charles, La., where I was instructed about the latest radio-telephone equipment. In Washington I received verbal instructions about my next assignment at the University of Texas in Austin. The authorities in Washington wanted changes made in a course for radio mechanics being given at the University. The training there was to parallel what had been done at Ellington Field. My job was to select a few of the Ellington radio school instructors to assign in setting up an appropriate course of study. The necessary paper work had been done by one assistant before we requested the transfer of qualified personnel who would teach the required subjects. During my term at the University, my orders placed me on an unavoidable conflict course with the interests of the University, which may have accounted for my early transfer. As you may suspect, the military usually gets its way in wartime, as it did in this situation.

A few of the radio instructors at Ellington were transferred to Austin to get the new school going quickly. After it was operating smoothly, I received orders to report to Love Field in Dallas, Texas. I was never quite sure what I was supposed to be doing at Love field, and I was not there long enough to find out. I do remember that I had not been paid when I left Austin, and I was flat broke.

Under ordinary circumstances, being broke in the Army is not very serious, but this turned out to be one of the hard things about the War. I had met a charming girl at the University of Texas, and she invited me to visit at her home in Fort Worth, a scant thirty miles from Dallas. To this day I have never been in Fort Worth (although I was supposed to go there to take the gas mask drill in a gas chamber), because I received orders to report without delay to the Firing Center at Camp McClellan, Anniston, Alabama. I made the trip under the worst train conditions you can imagine and I guess I looked it, because a very kindly Adjutant suggested (if not ordered) that I go to his tent and shave

and freshen-up; it would just not do to report to the Commanding Officer as I was.

When I did report, I was told in a few crisp words what was expected of me, and finally, if I observed all the rules I would be permitted to eat at the officers' mess; otherwise, he didn't know where I'd eat! The C.O. was a West Pointer and he demanded and received West Point performance.

I was on detached service with the Field Artillery, which was about to put together a complete division, and the command wanted to train its radio operators. That was my assignment, and it required a completely new radio school.

I shall not bore you with details, such as converting a mess shack into school rooms, and finding suitable instructors and personnel. We did not have to improvise, because the division in the making had real guns (French 75's and U.S. 4 inch) with live ammunition, firing over a hill at unseen targets. There were three airplanes with able pilots, and advisors who had been sent back from overseas to help us. We built a dugout close to the artillery battery, where our best students got real training.

The officers at the Firing Center lived in tents which could be heated with Sibley stoves. We were required to have strikers, who took care of our tents and uniforms, cared for the stove, maintained a supply of water in a bucket (which in winter generally formed a layer of ice), polished our shoes and boots, and made themselves generally useful.

I should mention the flu. We were required to wear face masks and to pass throat inspection before entering the officers' mess. Since those who got the flu and were sent to the hospital did not fare too well, I decided in advance that I would risk even a court-martial, by staying in bed in my tent, hoping that I might recover before I was reported. I did just that, consuming large amounts of liquids in the meantime. I recovered in two or three days and resumed my duties.

During the evenings, with available news, I kept a war map of the front lines. Colored pins showed the steady Allied advance, and I was not surprised at the sudden termination in November. I was ready when it was announced that discharges could be made at the convenience of the Government. However, there was a problem. I was not in the Field Artillery, but on detached service from the Aviation Section of the Signal Corps. Could I be discharged by a general officer in another service? It seemed to me that the very best approach was to question the authority, and I must have used the right approach and exactly the right words, because the officer had no doubt of his authority, provided I could get all the minor clearances. I never worked so fast or so hard. In less than two days I had all the necessary papers, which I exchanged for a welcome honorable discharge, and travel orders to proceed to my home in Hartford, Connecticut.

EDITOR'S NOTE:

Lt. Tuska returned to Hartford, to QST and the ARRL. He apparently introduced Lt. K.B. Warner to H.P. Maxim and others at ARRL, and participated in the resumption of publication of

QST by getting out the "Midget" issue in May, 1919. The first regular postwar issue of *QST* was in June, 1919, in which K.B. Warner is listed as Secretary of ARRL and Editor of *QST*.

Following his association with ARRL, Clarence Tuska went into the radio manufacturing business, and was responsible for the design and manufacture of several miscellaneous pieces of equipment for use by amateurs. The advertisement shown from the December 1919 issue of *QST*, is for a storage "B" battery by the C.D. Tuska Co. of Hartford. The Tuska Co. later designed and produced some excellent radio receivers, now prized in any collection of early radio equipment. Here are two examples of these receivers.



Fig. 8. The Type 220, listed by Tuska in an early catalog as the "EXPERT" TUNER. There were two wave length ranges which could be selected by use of the switch on the lower left of the front panel: 150-385 and 375-800 meters. The cost was \$75.00.

Photo credit: Lauren Peckham

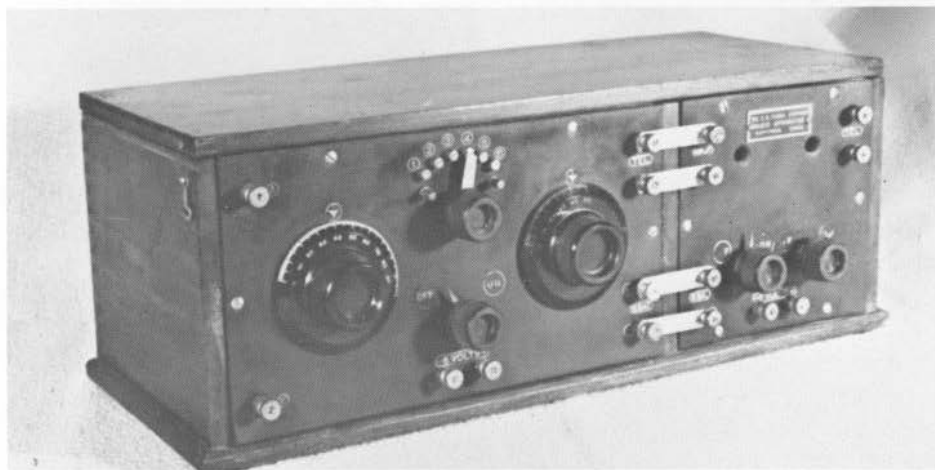
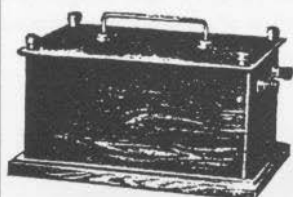


Fig. 9. The Tuska Type 225 broadcast receiver in an early form. It included the Type 224 1-tube receiver and the Type 226 2-stage audio amplifier, mounted in one cabinet. The price was the same as the tuner, \$75.00.

Photo credit: Lauren Peckham



NEW HI-VOLT STORAGE BATTERY

A new development in vacuum tube reception has been made in this New Hi-Volt Storage Battery. The feature is a self-contained battery and rectifier. The battery has a voltage of 24 and under normal use holds its charge for three weeks. When discharged all you do is to connect a 110 volts A.C. line and in three hours the battery is fully charged and ready for use.

Economical---Efficient---Lasting

Combined Battery and Charging Rectifier
as Illustrated, \$15.00

Send 6c. for our catalog No. 1
and description of Hi-Volt Storage Battery.

The C. D. Tuska Company
HARTFORD, CONNECTICUT

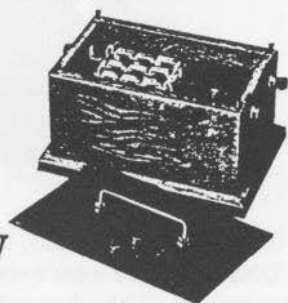


Fig. 10. Advertisement for a storage B-battery, from the December, 1919 issue of QST.