Signal Corps Radio in World War One
(a personal story)

By Margaret Bryant
Former Director of Engineering ABC Radio Networks, Dallas
Former Engineering Manager WMAQ-AM, Chicago
Former Chief Engineer KQXT-FM, WAAL-FM, WKOP-AM etc.
Granddaughter of Marquis (Mark) V. Bryant

May ist.,1968

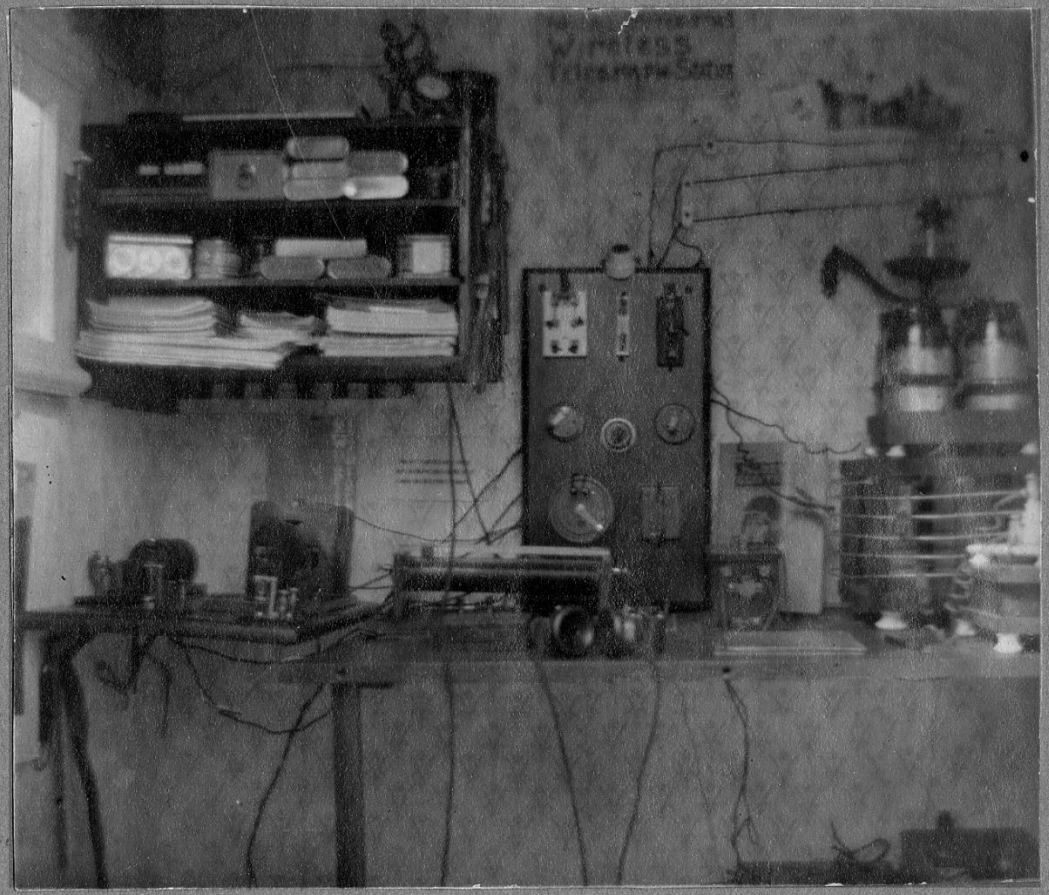
Dear Peggy:-

Here are some items regarding Dr.Lee DeForest. Dr.Lee De Forest was one of the early reaearchers in the field of wireless communication. Of course the very first was Guglielmo Marconi who successfully sent wireless messages across the Atlantic. Dr.DeForest experimented with wireless telegraphy in the early days when the main element of the receiver was the "cat whisker" detector- a fine wire resting on a sensitive mineral such as "galena". This was very unreliable as it was easily dislodged from its sensitive spot, which interrupted the signal. He worked with two and three element vacuum tubes, and patented them. He formed his own company and made many wireless accessories and later complete transmitters and receivers. His vacuum tubes were used in both transmitters and receivers and I had the honor to test the first wireless two way communication between an airplane and the ground. The transmitting and receiving tubes in these sets were DeForest tubes.

I hope that you can get something from this that you can use.

Love Grandpa.

Poppy



Owned and Operated
by Morgan V. Bryant

Address reply to CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.
Air DIVISION

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
WASHINGTON.

October 23, 1917.

Mr. Marquis V. Bryant,
6 So. Highland Avenue,
Nyack, New York.

Sir:

I am directing this letter to you knowing your interest in radio work, and I am counting on a similar patriotic desire.

I have just taken up this branch of the work, and expect to be commissioned within a very short time and sent to take charge of and establish a Radio School for wireless operators and repair men in the Aviation Service.

I shall need a large number of amateurs of recognized standing to act under me as instructors in the school. If you are at all interested and can consider accepting such a position, please advise me immediately.

Very respectfully,

C. M. Saltzman

CDT/MEM

P.S. This is a picked job, C.M.
C.D.T.


USR

Marquis (Mark) V. Bryant

Enlisted	12/10/1917
Arrived Ellington Field Houston, TX	12/26/1917
4 months later	
Arrived Carlstrom Field Arcadia, FL	4/11/1918
2 months later	
Arrived Penn Field Austin, TX	6/1/1918
7 months later	
Discharged	1/11/1919

Ellington Field

James Autry, Jr. of Houston 16 years old

ELLINGTON FIELD RADIO NEWS

VOL. 1 JANUARY 1ST 1918 Nº 2

The Commanding Officer has directed that Bulletins be published containing the news received nightly at the Radio School Stations. Thecontinuation of these Bulletins and the possible enlargement to a daily newspaper will depend upon the success and the interest taken in the initial numbers.

For General information, it may be stated that the press messages are received at 9:15 P.M. from the Key West Naval Radio Station. It is hoped that the range of the Radio School station will be materially increased, so that it may include the big Government station near Washington and possibly the German Radio station.

C.D. TUSKA
2nd Lieut. Sig. R.C.. A.S.
Commandant Radio School.

****

UNITED STATES WEATHER BUREAU

Winds for Tuesday and Wednesday;
NORTH ATLANTIC: Moderate North and Northeast; clear and cold; probably snow.
SOUTH ATLANTIC: Moderate winds, mostly north; generally fair and colder.
EAST GULF: Gentle and moderate north and northeast; fair weather.
WEST GULF: Gentle north and northeast; fair weather.
NO WAR WARNINGS.

Wash. D.C., Dec. 31, 1917. Disastrous earthquake which leveled Guatemala City, Capitol of the Guatemala Republic, was in progress yesterday. Heavy shocks occurred at five minute intervales. The State Department was advised this afternoon by the Central and South American Telegraph Co. whose manager at San Jose, Guatemala, returned to that city to-day after a trip to the devestated Capitol. Both American legion and American Consulate were badly damaged. Forty business houses were destroyed in the earthquake and most of the others collapsed. President Calsrea ordered inhabitants from the city yesterday. The Red Cross relief ship will sail from New Orleans for Guatemala on Jan. 8th to relieve the sufferers in the earthquake zone.

Rome, N.Y., Dec. 31, 1917. Temperatures ranging from 58 degrees below zero reported to-day from points in the Adirondack mountains, This city reports the mercury 60 degrees below zero; the lowest point in thirty years.

Moscow, Russia (?), Dec. 31, 1917. Severe fighting between the Red Guards and the Bolsheviki forces reported to-day at numerous points in the interior. Numbers of fires broke out at Vladivostock during street fighting.

CADET M.V. BRYANT
Operator Radio School

10 P.M.

********** HAPPY NEW YEAR **********

EXTRA; RECD AT 11.30 P.M. VAL de MAY Forward following to American Legation, Guatemala City; Department commends your activity and your promtness in reporting under prevailing conditions. The Government of the United States offers to you and the other members of the Legation and Consulate as well as to the entire American colony its sincerest sympathy in the great disaster which has overtaken you and wishes to assure you whatever assistance is possible for it to give. Telegraph the number of destitute Americans wishing transportation to the United States. You may officially assist relief work keeping in mind that funds for such work are supplied only by the [illegible] the Department. Assure President Estrada Cambera of the support [illegible] the Government of the United States in this hour of trial.

SIGNED
LANSING

Radio telegraphy was taught at Ellington Field

Radio telegraphy was taught at Carlstrom Field

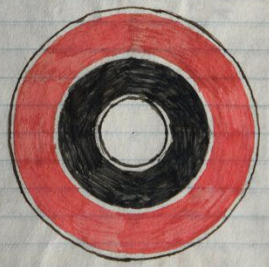
Radio telephone was taught at Gerstner Field, Lake Charles, LA

Lieutenant M. V. Bryant.
Air Service

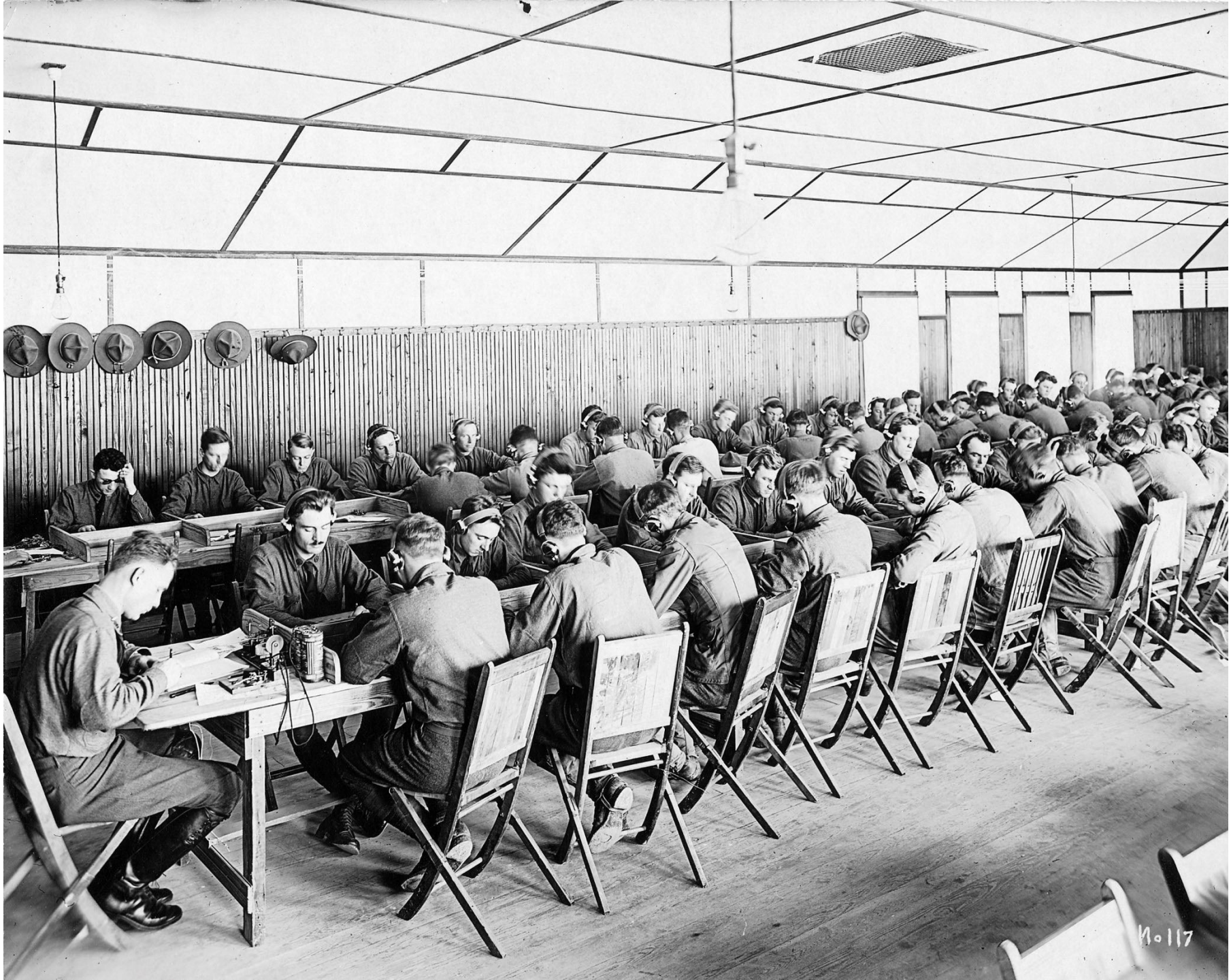
RADIO

SCHOOL

NOTES



1918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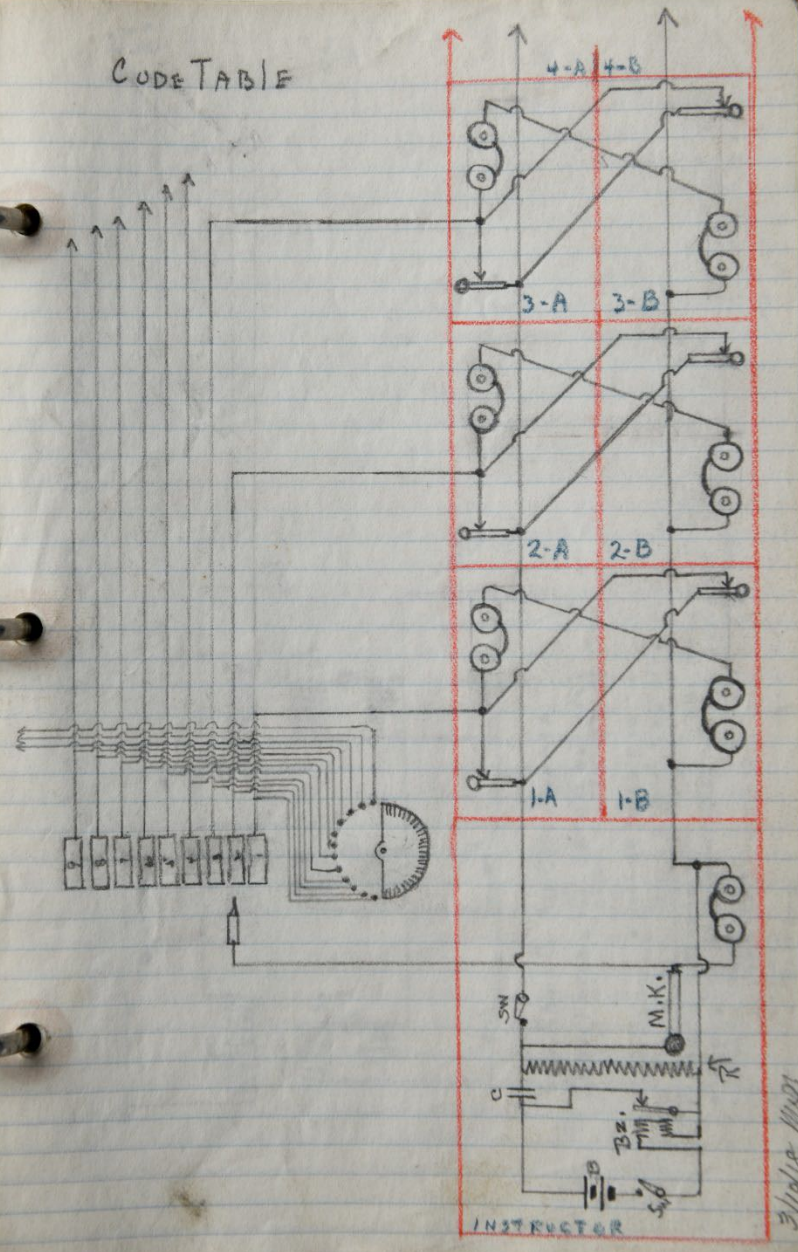
CODE TABLE

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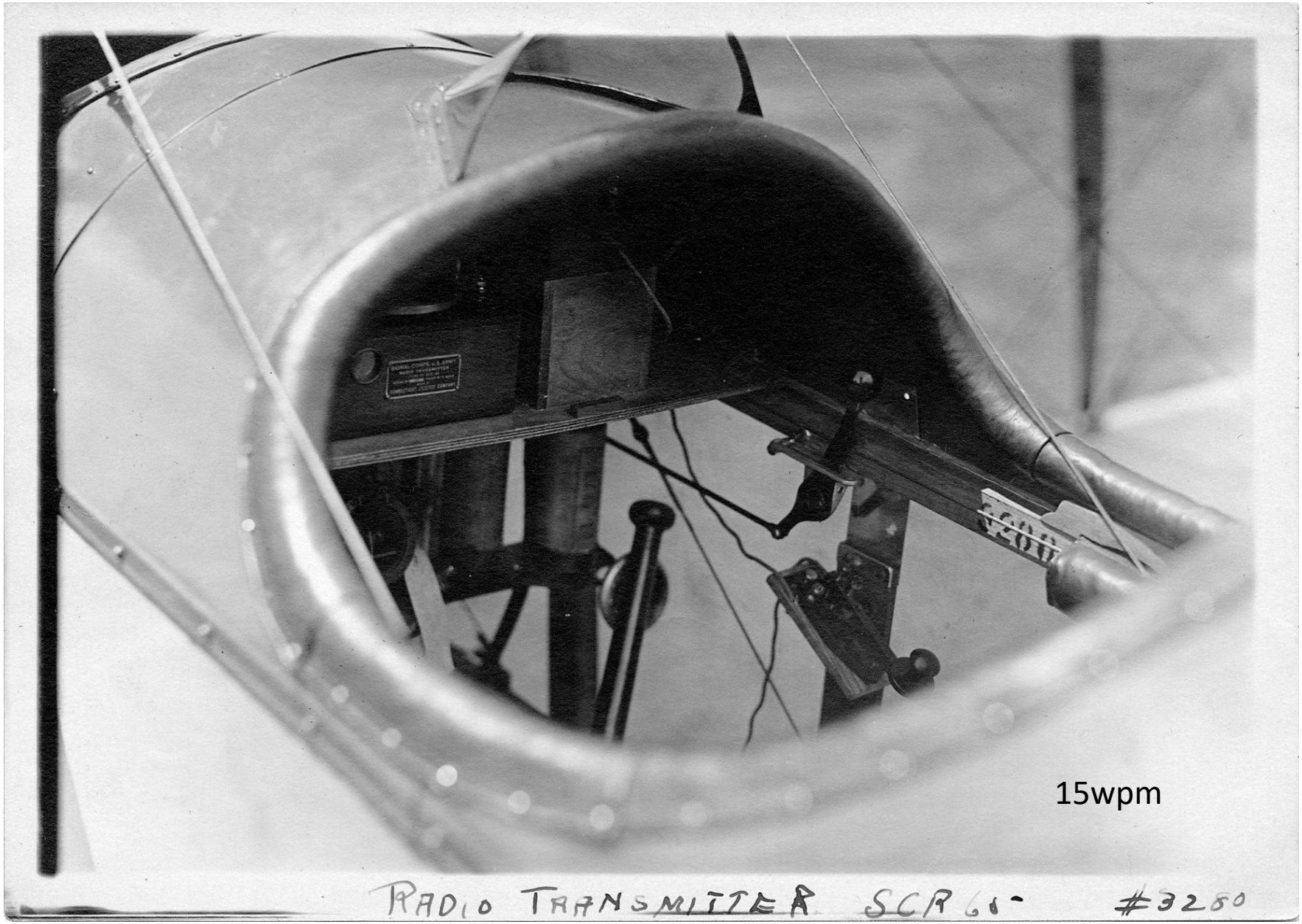
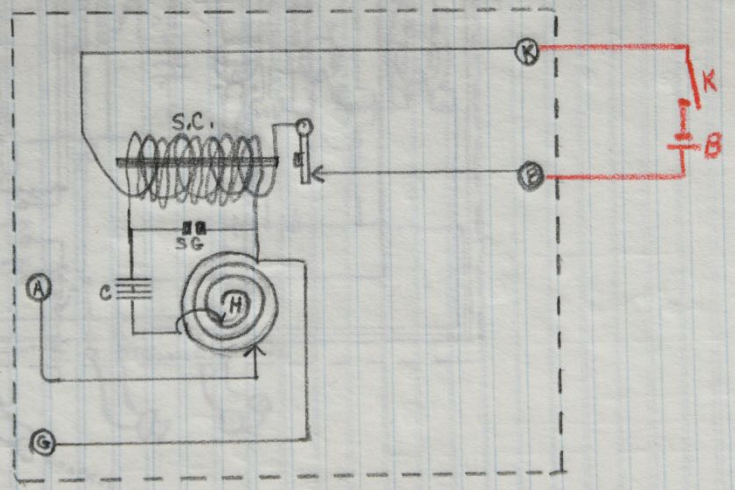


RADIO TRANSMITTER SCR 61- #3250

AIR RADIO TRANSMITTER S.C.R. 65.

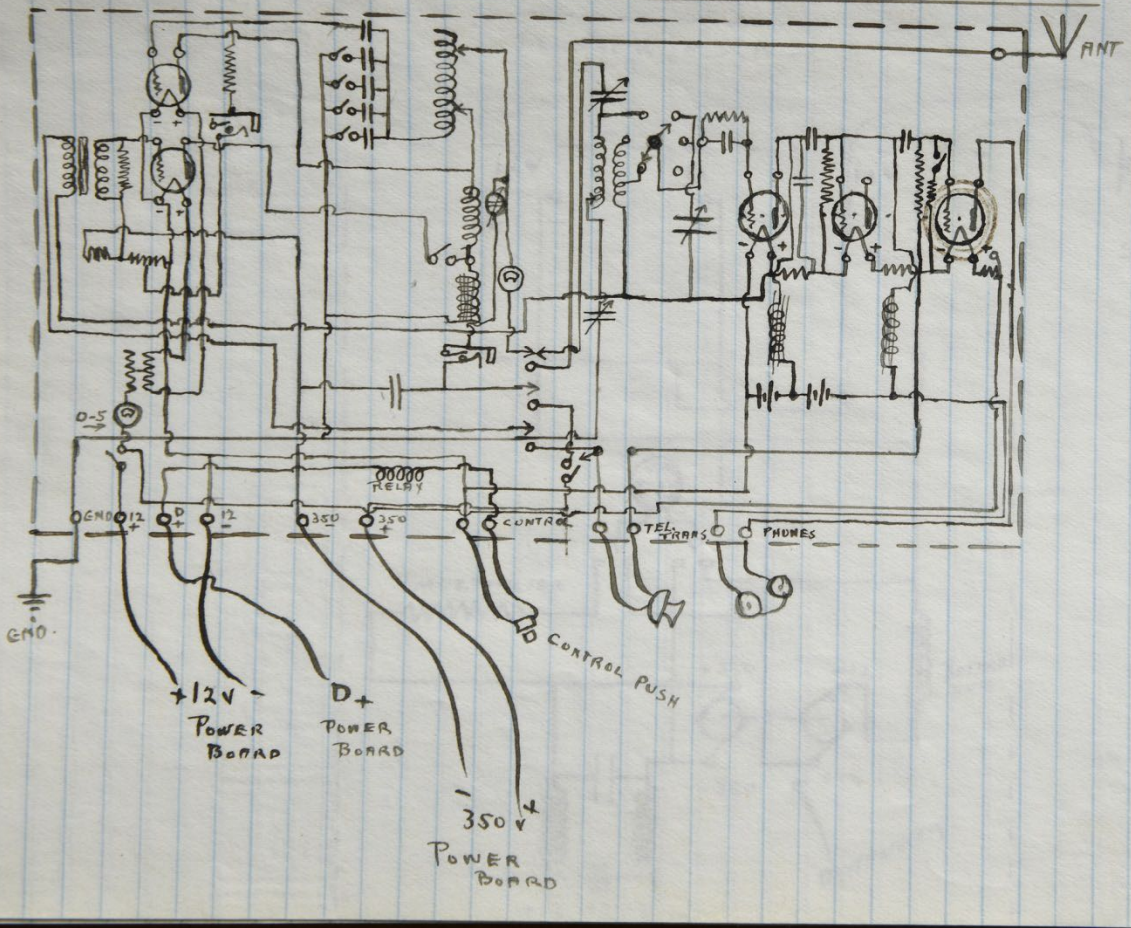


CONNECTIONS

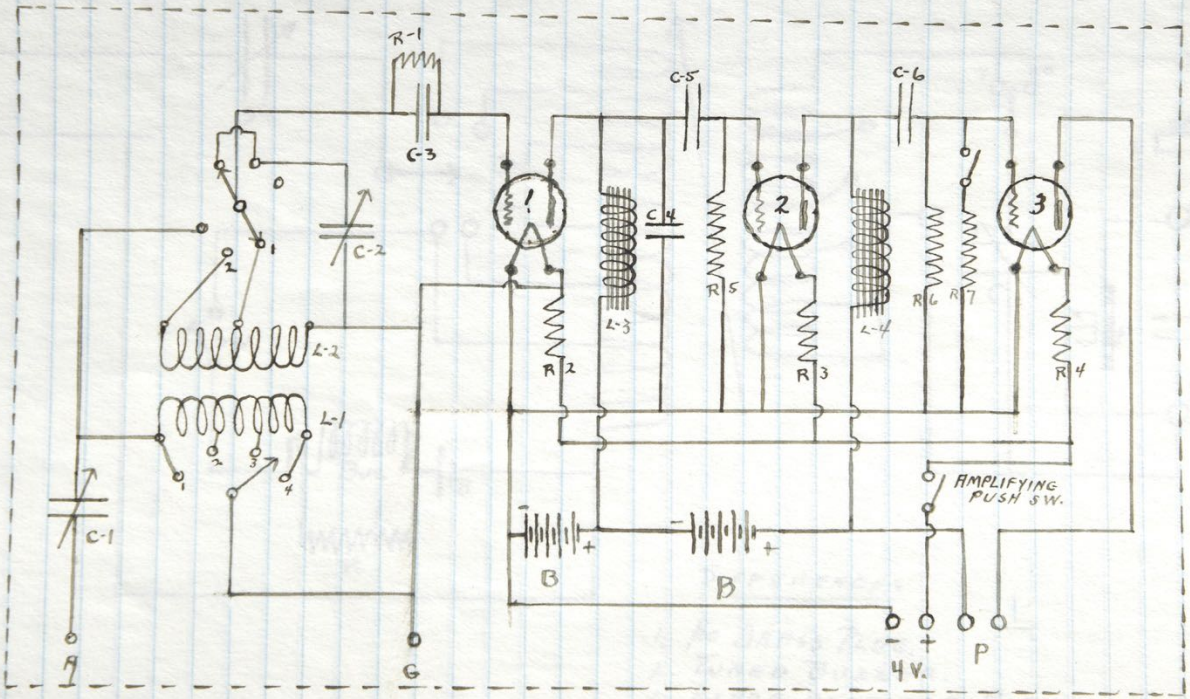
A = ANTENNA
C = CONDENSER
SC = SPK. COIL
SG = SPK. GAP
B = BATTERY.

G = GROUND
H = HELIX
K = KEY
= EXTERNAL CKT.

S.C.R. 67 RADIO PHONE GROUND SET

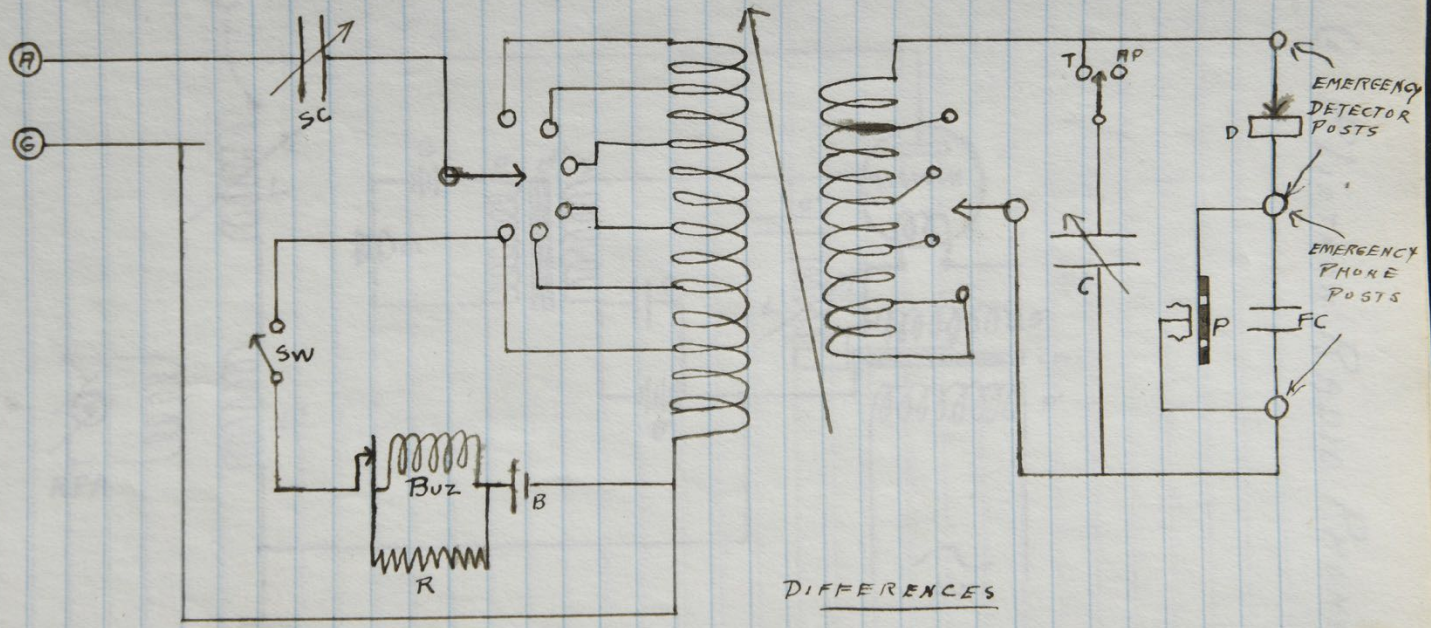


S.C.R. 75 Airplane Receiver.



RECEIVER TYPE BC-14A.

(WITH TUNED BUZZER CIRCUIT.)

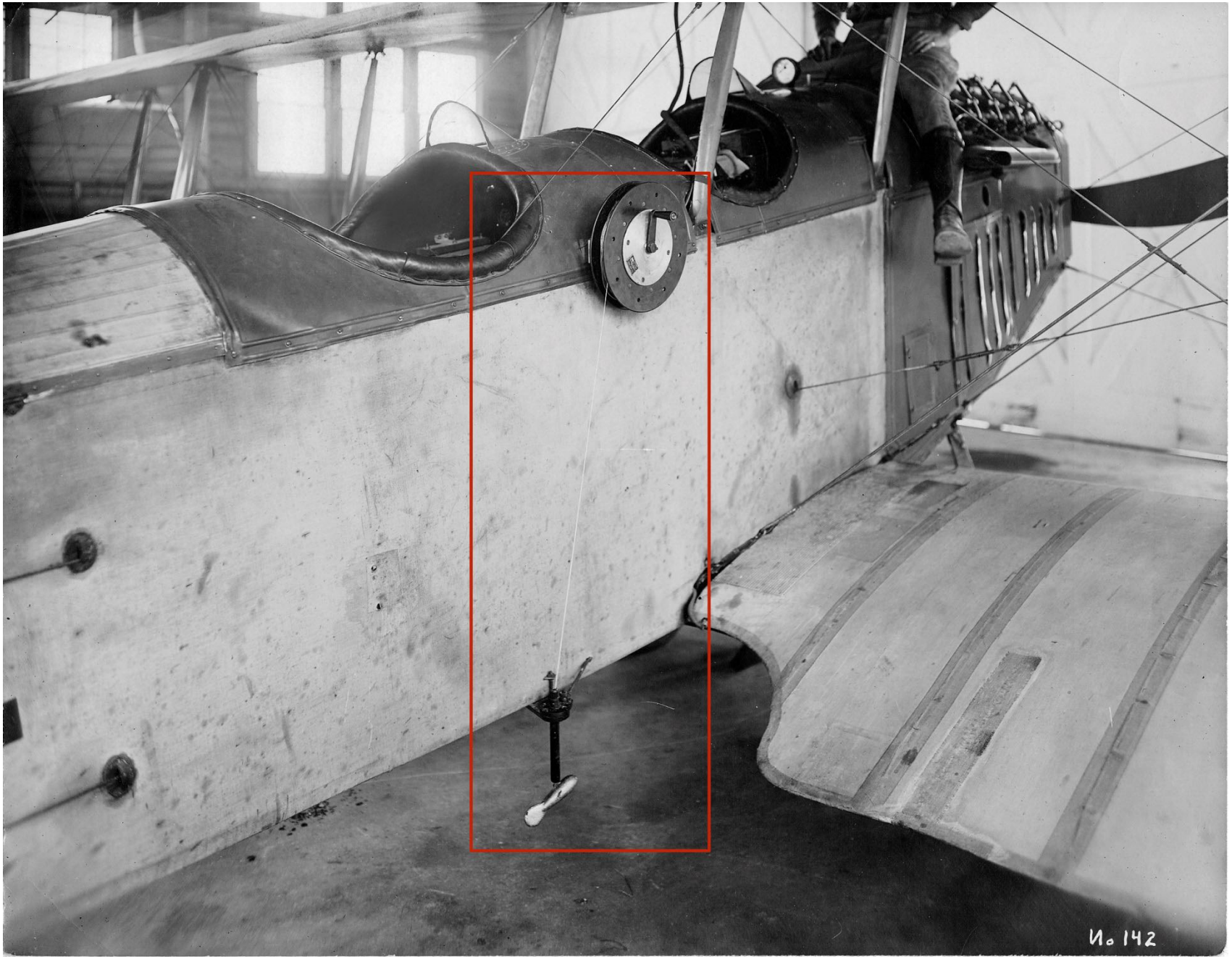


DIFFERENCES

1. NO BRASS PLUG.
2. TUNED BUZZER.
3. EXTRA DETECTOR POSTS
4. " PHONE "
5. MAX. AND MIN. COUPLING

LT. MAURICE MURPHY, PILOT & MVIB-YANT, R.O.


Aero Reel Antenna
No 142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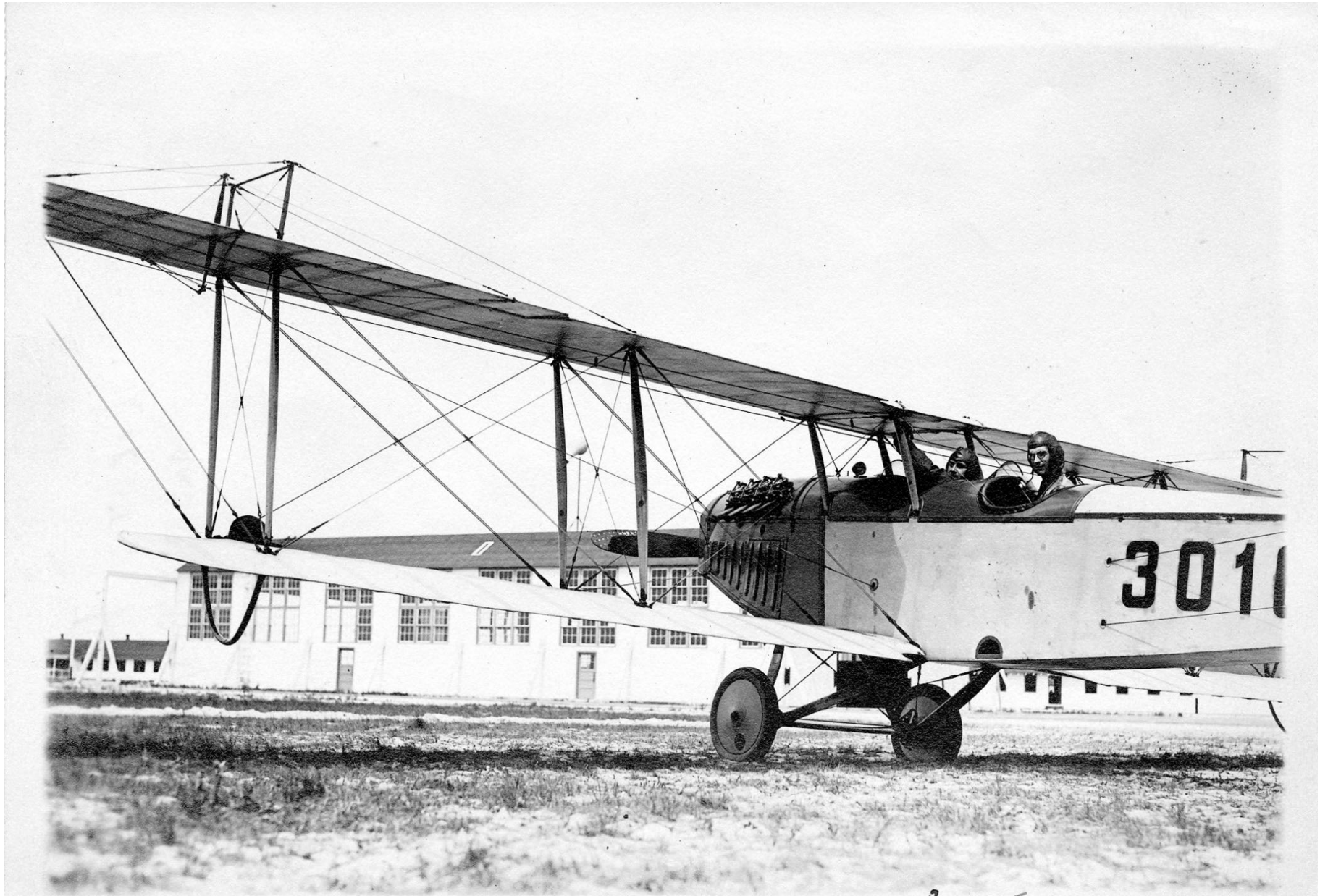
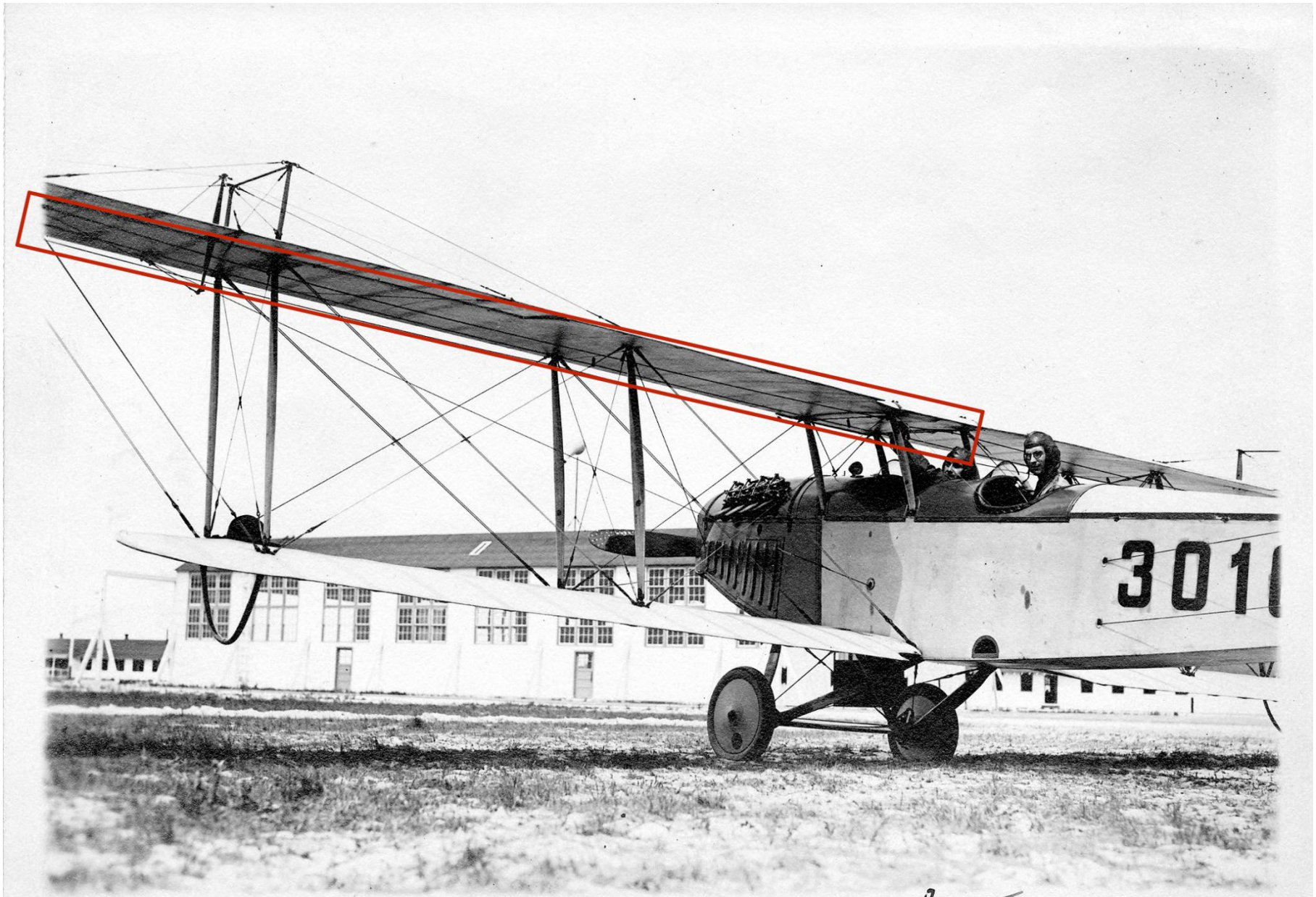


#3016 - UNDER-WING ANTENNA AND TEL. HELMETS



#3016 - UNDER-WING ANTENNA AND TEL. HELMETS

SUBJECT: CN.6749 510-4 | NUMBER AU

Rec'd from C.O.

165-WW 510 4
PHOTOGRAPHER

Aug. 23, 1918 | June 16, 1918
REC'D | TAKEN

DESCRIPTION

CARLSTROM AVIATION FIELD,
ARCADIA, FLORIDA.

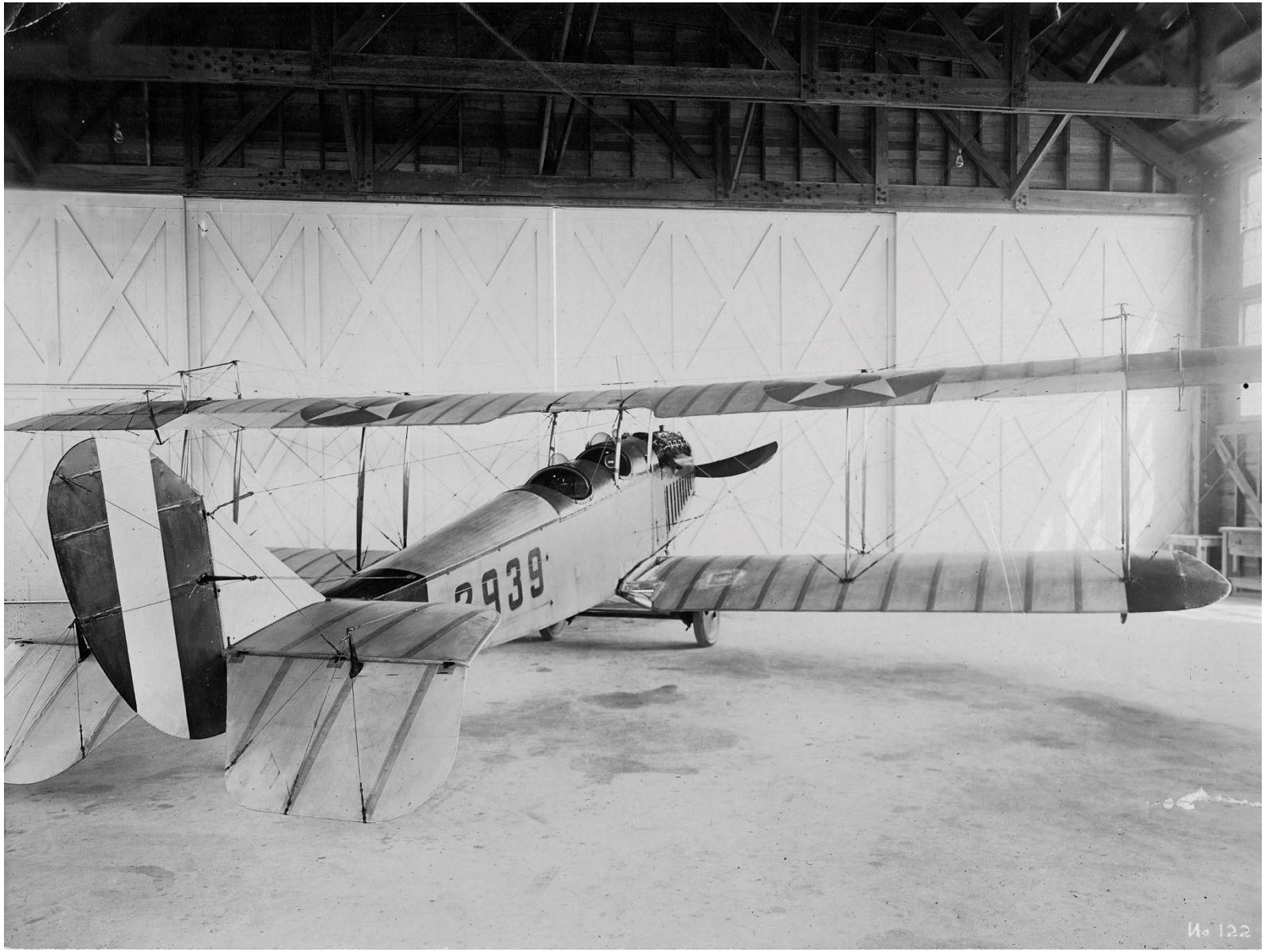
Radio ship under-wing aerial.

Radio Ship under Wing Aerial

ISSUED:

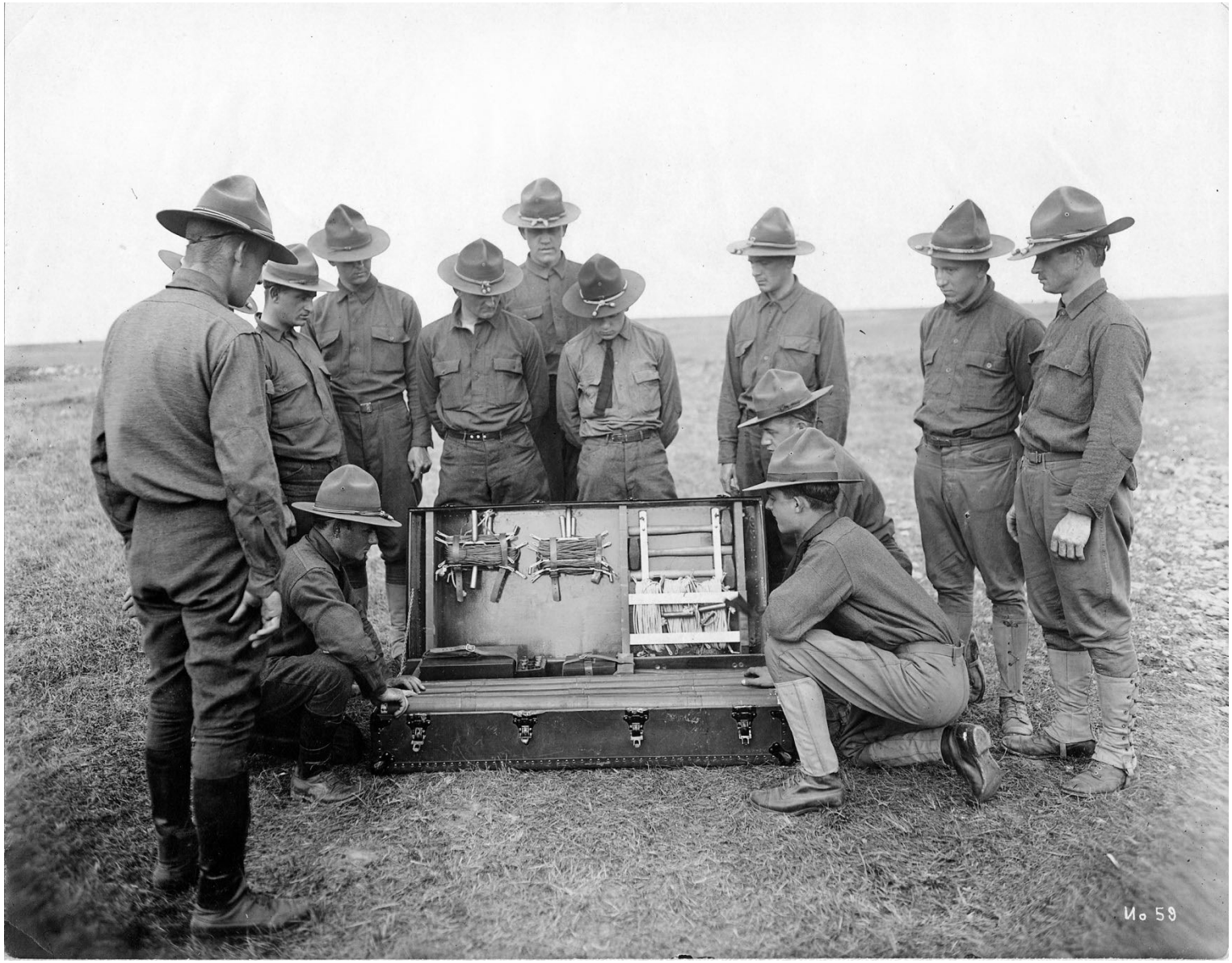
NOTES:

4



Triangle antenna

CADET SANBORN'S TAIL-SPIN. 4/16/18



Field Operations


No62


No62


No 57


No 60


U.58


No 61

Week	MON	TUE	WED	THURS	FRI	SAT.
1ST.	STATIC	VOLTAIC	OHM'S LAW applied to SIMPLE CIRCUITS	ENERGY & POWER	MAGNETISM	TEST
2ND.	ELECTRO-MAGNETISM	SELF & MUTUAL INDUCTION	TRANSFORMERS & SPARK COILS	GENERATORS & MOTORS	MEASURING INSTRUMENTS	TEST
3RD.	STORAGE BATTERIES	STORAGE BATTERIES	REVIEW	GENERAL TEST.	PRIMARY OSCILLATORY CIRCUITS	WAVEMETERS DEMONSTRATIONS
4TH.	SECONDARY OSCILLATORY CIRCUITS	SECONDARY OSCILLATORY CIRCUITS	TEST OSCILLATORY CIRCUITS	CONDENSERS & INDUCTANCES	SUSTAINED & DAMPED OSCILLATIONS Decrement —	TRANSMITTER TUNING
5TH.	TEST ON WORK SINCE LAST TEST	ANTENNA & GROUND SYSTEMS	DIRECTIVE ANTENNA	RADIATED ENERGY	TRANSMITTER TROUBLES	GENERAL REVIEW RADIO TRANSMITTING
6TH	TEST RADIO TRANSMITTING	DISCUSSION ON RADIO RECEPTION	DIRECT & INDUCTIVELY COUPLED CIRCUITS	RECEIVER CIRCUITS	CRYSTAL DETECTORS POTENTIOMETERS.	TEST ON WORK SINCE LAST TEST
7TH	VACUUM TUBE THEORY	ADJUSTING VACUUM TUBES	RECEIVER TUNING THEORY	METHOD of TUNING RECEIVER SETS	TUNING of REGENERATIVE SETS	TEST ON WORK SINCE LAST TEST
8TH	RECEIVER TROUBLES	TUNING COMPLETE REC. SET.	SPECIAL VACUUM TRANSMTRS	GENERAL REVIEW	GENERAL REVIEW	FINAL TEST (3 HOURS)

INSPECTION OF NOTE BOOKS EVERY WEEK.—

AIR SERVICE SCHOOL FOR RADIO OPERATORS
PRACTICAL RADIO LABORATORY

#27

EXPERIMENT #1. Receiving Circuits.

OBJECT:-

To familiarize the student with simple radio receiving circuits, and to realize the importance of each part, and its function in the circuit, and to understand the principles of tuning a simple receiver.

UNDERLYING THEORY:-

The simplest receiving circuit is one which contains only an Antenna, Ground, Detector and Phones. Theoretically this can only receive from stations operating on a wavelength corresponding to the natural period of the aerial as the circuit contains no variable capacity or inductance to change wavelengths. This circuit, we say, is "untuned". If, however, we insert in the circuit, a variable inductance, called a "tuner", or better still, a "loose-coupler", we have provided a means of varying our wavelength thru a greater range, and we have developed our circuit to where we say it is "tuned": i e capable of being adjusted to waves of different lengths.

PROCEDURE:-

(a) Connect up to a small antenna and ground- a detector shunted by a pair of phones, and listen for signals. Note the advantages or disadvantages of such a simple set for practical use.

(b) Using the same antenna and ground, put in the circuit, (1) a Tuner, (2) a Loose Coupler. Note the advantages or disadvantages of having a circuit which can be tuned to various waves.

(c) Using the same antenna and ground as above, and with the loose-coupler and detector connect a variable condenser across the secondary of the loose coupler. Note and differences in the tuning qualities of the closed circuit.

(d) Using same apparatus as in "C", connect the variable condenser in series with the antenna or ground, and note any differences in operation, and effect on the open circuit.

QUIZZ:-

1. Why does a simple untuned receiver only respond to a particular wave length?

2. Why not have fixed inductances or capacities instead of variable?

3. Why is a Loose-Coupler better than a Tuner?

4. Why connect the variable condenser in <u>series</u> with the antenna or ground?

Lieut. Bryant.
Austin, Texas.

AIR SERVICE SCHOOL FOR RADIO OPERATORS
PRACTICAL RADIO LABORATORY #28

EXPERIMENT #2 Receiver-SCR 54 and SCR 55.

OBJECT:-

To familiari ze the student with wiring diagrams and method of wiring the SCR 54 and SCR 55 so that he knows, not necessarily a certain fixed way of drawing the diagram of cOnnections, but thoroly understands the purpo se and relation of each part to the others.

UNDERLYING THEORY:-

The SCR 54 and SCR 55 were designed to suit the n eeds of the Signal Corps where a simple, fool-proof, yet fairly accurate receiving unit was desired. By careful study of the diagram of connections, it will be seen that the SCR 54 embodies one of the simplest receiving circuits we have; and that the SCR 55 circuit is that of the elementar y audion. While it has been the object to make both of these sets rugged and fool-proof, it must be remembered that any receiving set is composed of more or less delicate electrical apparatus, and should be handled carefully.

The SCR 54 has a short wave condenser in the primary circuit. The A.P. switch cuts out the Secondary Condenser, making that circuit "Aperiodi" i.e. Without a definite period of oscillation.

The SCR 55 is provided with a fixed filament resistance which has b een found to be correct size when using between 3.6 and 4.4 volts on the "A" Battery, as prescribed. There are no adjustments on the SCR 55 to be made.

PROCEDURE:-

(a) Remove the SCR 54 from its case and locate the following parts: Coupler Primary, Coupler Secondary, Primary Condenser, Secondary Condenser, Phone Jack, Phone Condenser.

(b) Note the position of Secondary inductance when pointer is at (1) maximum, (2) minimum; when condensers pointers are at (1) maximum, (2) minimum.

EXPERIMENT #2----Sheet 2.

(c) Remove the SCR 55 from its case and locate the following parts: high resistance leak and shunt condenser, filament resistance, "B" Battery.

(d) The brass plug in the SCR 54 is to short circuit the phone jack when using the SCR 55 for a detector. Signals can be heard without the plug in the jack leaving the jack open. Try it, and find the explanation.

QUIZZ:-

(1) Diagram the SCR 54 and SCR 55:

(2) What is meant by the term "Short Wave" Condenser?

(3) What is meant by "Aperiodic"

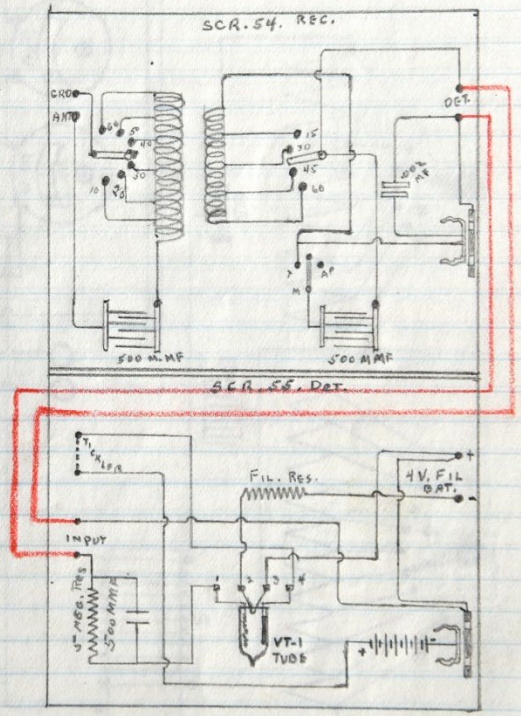
(4) What is meant by "Maximum Coupling"?

Lieut, Bryant.
Austin, Texas.

SCR 54-55

WESTERN ELECTRIC CO.

SIGNAL CORPS, U.S. Army
RECEIVING SET CONNECTED TO VT-1 BULB.



— EXTERNAL CIRCUIT

AIR SERVICE SCHOOL FOR RADIO OPERATORS
PRACTICAL RADIO LABORATORY,

#29

EXPERIMENT #3. Calibrating the SCR 54.

OBJECT:-

The purpose of calibrating the SCR 54 receiving set is to give the operator an idea of its tuning characteristics and experiance in handling the wavemeter as an instrument of measurement. In addition, thi s calibration is of great practical value, since the positions of the pointers on the inductance and capacity of the closed circuit are found for each wavelength, they can be listed in a table. This table can be referred to and used to set the instrument to watt for a sig nal coming on a previously known wavelength. Or, if a wave of unknown wavelength "comes in", the positions of the pointers can be noted, and the table will then giveus the exact value of its length. Thus the SCR 54, when calibrated, becomes really a wave meter, or wave measurer.

UNDERLYING THEORY:-

Calibrating any instrument means to mark the p oints on it which correspond to similar points on an accurate measuring device which checks up with the Government's adopted standards for such an instrument.

Thus:-Calibrating a ruler in inches, consists in marking points on it which correspond to points on another accurate ruler, which has, for instance been made at the Bureau of Standards.

And:-Calibrating the SCR 54 closed oscillating circuit consists in marking points on its vary ing devices, which correspond to points of known value on another instrument: the wavemeter .

To measure an oscillating circuit, it is the universal rule that the inductance of the unknown circuit be placed in "inductive relation" to the inductance of the k nown wavemeter circuit, and either be excited (supplied with current) at the same time varying the unknown until the greatest amount of current flows in the unknown circuit.

To find the adjustment at which the greatest current flows, we employ several measuring devices, notably the detector and head phones, and the mili-ammeter. In the first case the loudest sound in the receiver is the indication desired and in the latter, the largest deflection of the needle of the mili-ammeter. Remember that the numbers on the scale of the mili-ammeter do not signify anything.

The primary or open circuit, in actual operation, contains an antenna, of which there are no two exactly alike. So calibrating the open oscillatory circuit, is worthless, when the set is used on another antenna. But the closed or secondary oscillatory circuit is complete, right inside the instrument; this circuit is the only one worth calibrating.

PROCEDURE:-

(a) Take the SCR 54 apart and locate the secondary inductance coil. Place same so that it is parallel to the coil of the SCR 61 and as far away as found practicable in (c).

(b) Put the secondary switch on T and the telephones on head. Use the crystal detector on the SCR 54 and be sure it is well adjusted.

(c) Excite the wavemeter by pushing the buzzer button and listen for response in the telephones of the SCR 54. Adjust secondary inductance coil and condenser for maximum response for each length of wave emitted by the SCR 61 Note the setting of each coil and condenser for various wavelengths as shown on the table under "Results".

RESULTS:-

Fill out the following table.

W.L. on Wavemeter.	Corresponding set on: Sec.Induct.	Sec.Cap'y
150		
200		
250		
300		
350		
400		
450		
500		
550		
600		

QUIZZ:-

(1) Why not calibrate the open circuit of a receiver?

(2) Why do we place the secondary coil near the coil of the wavem eter?

(3) What is "Calibration"?

(4) What is "Excitation"?

Li eut, Bryant,
Austin, Texas

AIR SERVICE SCHOOL FOR RADIO OPERATORS.
PRACTICAL RADIO LABORATORY,

#31

EXPERIMENT #5 Operation of S.C.R.54 with Different Detectors.

OBJECT:-

To obtain familiar ity with the differences in operation of the SCR 54 using the two main types of detectors,i.e.,the crystal and the audion : and to obtain, thru practice, the ability to put and keep same in operation successfully.

UNDERLYING THEORY:-

Audion detectors have a certain amount of capacity right inside their bulbs,while the crystal has none. On account of this, various differences in their operation are noticable,when compared with crystals.

PROCEDURE:-

(a) Tune the SCR 54 to a certain wavelength, using th e crystal detector.Note the signal strength.

(b) Without changing the setting of the SCR 54, remove the crystal and replace it with the SCR 55. Note the signal strength.

(c) Try reducing the capacity of the Secondary Condenser, and the signal strength will slightly increase.Why?

(d) Use first the detecto r , which should be carefully adjusted, and then the SCR 55 and compare the strength of static.

(e) Try to tune out static.

QUIZZ:-

(1) Were signals louder or weaker on the SCR 55 before a change in tuning was made?

(2) Why was it necessary to reduce the Secondary Capacity?

(3) Which detector was the best receiver of static?

(4) Is static "Aperiodic"?

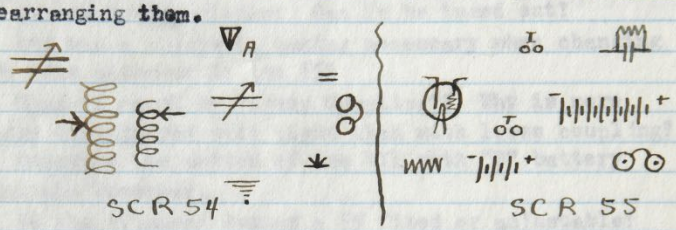
Lieut.Bryant,
Austin,Texas

Lab. Exam.

1. Describe the action of a spark coil and tell how you would adjust the coil on the SCR 65 to maximum efficiency. Draw diagram of a spark coil.

2. What is the effect of close coupling of a receiver. Will close coupling make signals weaker or louder?

3. Connect as neatly as possible and with as direct lines as you can the instruments placed opposite without rearranging them.



4. In using the SCR 61 Wavemeter why do we place it near the SCR 54. To what does the W. M. correspond when so used.

5. How do you get a "contact" on a crystal.- Light or heavy?

6. Why can signals be heard on a SCR 55 a few seconds after the "A" battery is switched off?

7. Why are we not able to "tune out" a station who is near us and whose signals are loud even tho there is a difference of 300 meters in our wave length?

8. Show by diagram a method of exciting an oscillating circuit "Inductively".

9. List in their proper order the instruments or parts of instruments manipulated to tune a SCR 54 to a given wave.

10. What is excitation, (b) tune, (c) Tone?

Lab. Examination.

1. What is "calibration" and of what use is a calibrated closed circuit.
2. What is meant by the term Inductive Relation?
3. What is the AP switch on the SCR 54 used for? What is meant by the term "Aperiodic"?
4. What is the brass plug for and why can signals be heard with it out when using the 55.
5. Is static "Aperiodic? Can it be tuned out?
6. Why was a change in tuning necessary when changing from this detector to the 55?
7. What is meant by "loose Coupling"? Why is more energy transferred with tight than with loose coupling?
8. Describe the action of the VT1 with "B" battery terminals reversed.
9. Is the filament Res of a 55 fixed or adjustable? Would there be any advantage in applying 6 or 8 v. through a finely adjustable resistance?
10. What are the symbols used to represent the following: instruments:
    a. Loose coupler
    b. Variable condenser
    c. Resistance
    d. Battery
    e. VT1 Audion

PRACTICAL RADIO LABORATORY AND
FIELD OPERATIONS.
QUESTIONS.

1. Of what advantage is a directional antenna, and how many different types were used in our field work?
2. In a dry cou ntry, suc h as Texas, is a counter poise or a ground the best? Why?
3. Name in order of their importance, the various types of directional antenna .
4. How many distinct tones can be had from the SCR 65 transmitter? How does "tone" and "tune" compare in importance?
5. What are three main qualifications of a good radio operator in the Air Service?
6. In tuning any receiver, particularly the SCR 54 is it necessary to re-tune the open circuit after the closed circuit is tuned and the coupling is loosened?
7. In using a counterpoise, why is it placed directly under the antenna?
8. What is the purpose of the Input screw on the SCR 65, and what happens when you tighten it down?
9. In tuning the SCR 70, what are the first three movements you would make?
10. What kind of apparatus is necessary for transmitting? Why?
11. In what directionare electric waves radiated?
12. What type of antenna is best suited for sending in any dire ction? Why?
13. Explain the meaning of "resonance".
14. What is mea nt by "uni-directional"?
15. Explain the difference in damped and un-damped waves.
16. How are spark signals obtained?
17. How are hetrodyne signals obtained?
18. Explain how a crystal detector is set in adjustment.

19. State why the coupling is placed at maximum ~~xhm~~ when locating signals.
20. Which is more selective, loose or close couplig Why?
21. What is meant by tuning a circuit?
22. What is the best way to tune out an undesireabl wave? e
23. If tuning out this undesirable wave, cuts out the wave that was wanted, what would you do to carry on communication?
24. By what reason can yo u hear a strong station although the wave is much longer than the one receiving?
25. What is the range of wave length of the S.C.R. 54 receiving set?
26. What crystal is used in the detector?
27. Explain the reason for the closed detector.
28. How is the detector adjusted? What precautions should be taken in adjustment?
29. Is the contact of the spring on the crystal heavy or light?
30. Is it necessary to readjust the primary after the secondary adjustment has been made?
31. Explain change in adjustment in inductance and capacity for change in coupling.
32. Explain conditions and properties of the secondary circuit with the center switch on A.P. What is Aperiodic?
33. From observations and data taken in the laboratory give full discussion of the correct method of tuning in a given wave length.
34. What setting on the S.C.R. 70 corresponds to the A.P.- T. switch on the S.C.R. 54.
35. Explain how direct current impulses reach the phones when crystal detector is used.
36. Party is ordered out to establish stations for 69 and 54. Make list of material required to establish these stations.
37. Draw complete diagram of electrical connections for the S.C.R. 69.

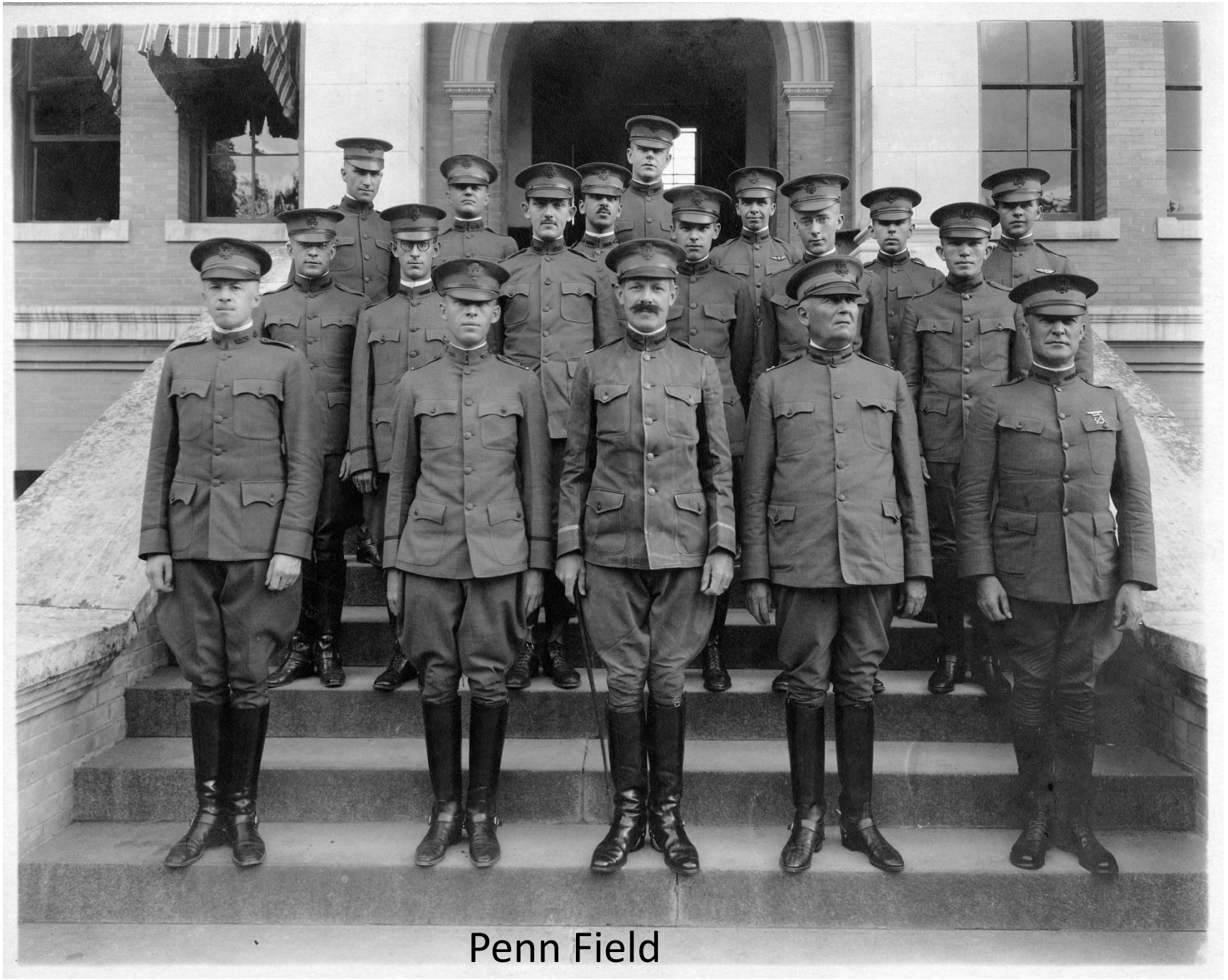
38. Describe the use of the V.T.2 buld in wireless telegraphy.
39. What is the S.C.R. 53 used for. Also 54 - 55 - 56.
40. On what wave lengths many an antenna whose natural period is 500 meters, be made to transmit efficiently?
41. In using the S.C.R. 55 with the S.C.R. 54 why should the dummy brass plug be inserted into the phone jack?
42. What type of phones are used with the S.C.R. 54.
43. What determines spark frequency on the SCR 69.
44. Draw a diagram of the S.C.R. 61 as used in the calibration of the S.C.R. 54, showing the buzzer and battery connections in detail.
45. Draw the diagram and explain the operation of a wavemeter when used to measure the wave length of a transmitting set.
46. What might excessive arcing at the vibrator of the S.C.R. 65 set indicate? Arcing at the spark gap? What could be done to remedy these faults?
47. What causes a vacuum tube to turn blue?
48. How can you tell whether or not a storage battery is suitable for use with the S.C.R. 65 set even though it registers proper voltage on a voltmeter?
49. Is a grounded insulated counter-poise as effective as a bare wire stretched on the ground?
50. Draw the diagram of electrical connections of the S.C.R. 56.
51. What is the meaning of "jamming"? Explain method og determining the maximum radiation on the S.C.R. 65; on the S.C.R. 56.
52. Give the rule for determining the directional qualities of an antenna.
53. Show by diagram the directional characteristics of an inverted "L" and explain why this is so

CONVENTIONAL SIGNALS.

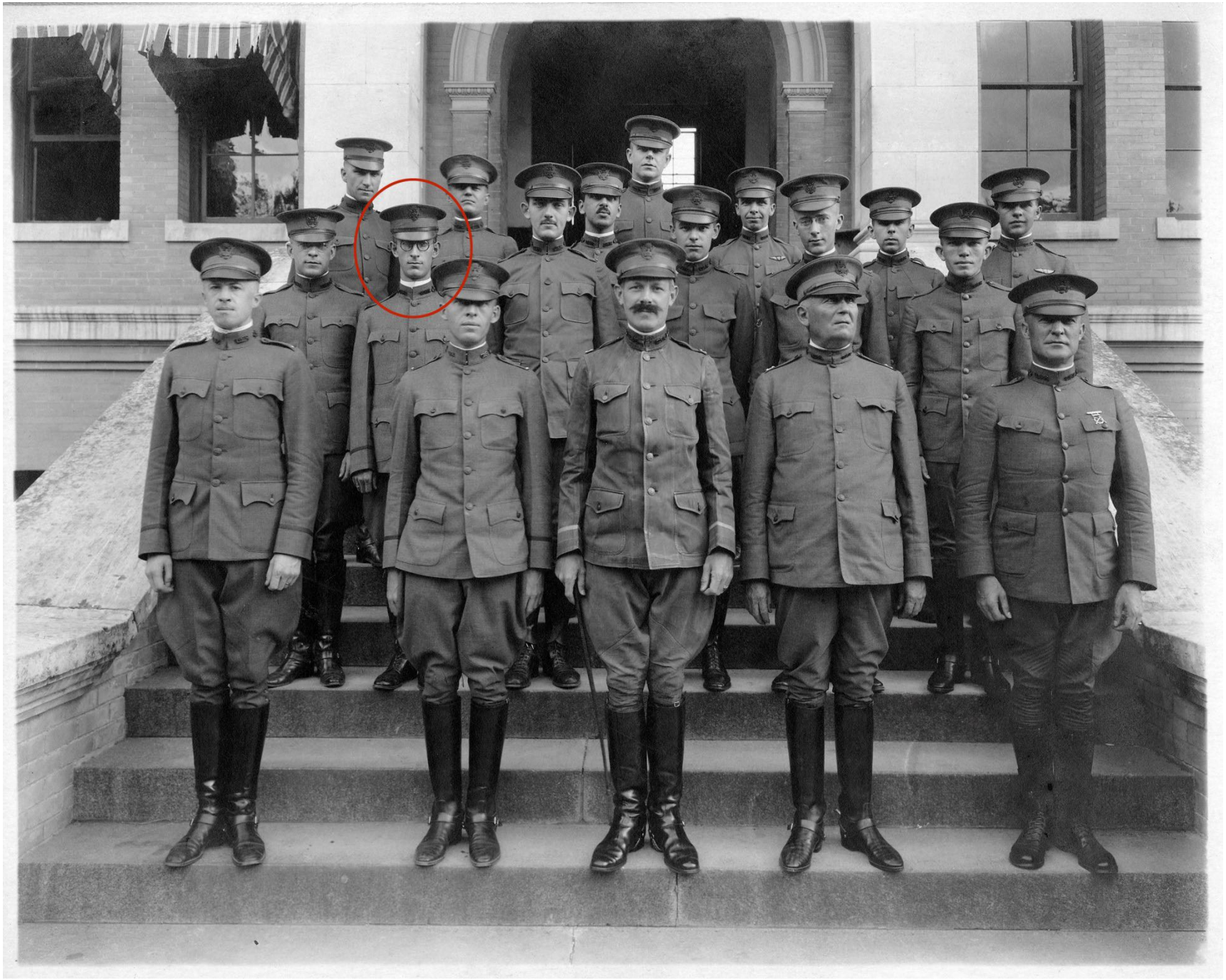
CQ	GENERAL CALL TO ALL STATIONS(ATTENTION)
QRA	THIS STATION IS ---
QRH	MY WAVELENGTH IS ----METERS
QRK	I AM RECEIVING WELL
QRL	I AM RECEIVING BADLY,SEND..._. for adj.
QRM	I AM BEING INTERFERED WITH
QRN	THE ATMOSPHERICS ARE STRONG
QRO	INCREASE YOUR POWER
QRP	DECREASE YOUR POWER
QRQ	SEND FASTER
QRS	SEND SLOWER
QRT	STOP SENDING
QRU	I HAVE NOTHING FOR YOU
QRV	I AM READY
QRW	I AM BUSY
QRX	STAND BY (WAIT)
QRZ	YOUR SIGNALS ARE WEAK
QSA	YOUR SIGNALS ARE STRONG
QSB	THE TONE (SPARK) IS BAD
QSD	THE TIM E IS-------O'CLOCK
QSP	INFORM_____THAT I AM CALLING HIM
QSQ	YOU ARE BEING CALLED BY _____
QSR	I WILL FORWARD TH E RADIOGRAM
QST	GENERAL CALL
QSU	I WILL CALL YOU WHEN I HAVE FINISHED
QSW	INCREASE YOUR SPARK FREQUENCY
QSY	TRANSFER TO A WAVELENGTH OF-----METERS

NOTE:-When the above signals are followed by the Interrogation Signal(..--..), the signals used form the question.

UNIVERSITY OF TEXAS,RADIO SCHOOL CALL---2F.



Penn Field



After the war

4 Weybridge Road,
Mineola, Long Island, N.Y.
March 27, 1952.

Mr. & Mrs. M. V. Bryant,
Steenykill Farm,
R. 3, Box 259,
Kingston, N.Y.

Dear Mr. & Mrs. Bryant:-

I am in receipt of a note from Mr. J. H. Hickerson, treasurer of the deForest Dinner Committee, stating that you advised him of your inability to attend the deForest dinner at the Waldorf-Astoria hotel on April 8th.

Invitations were also sent to Mr. Clarence D. Tuska who lives in Princeton, N.J. and Mr. Joseph A. Worrall, Gen'l Sup't. of the R C A Communications, Inc., at 66 Broad Street, New York. Hanover 2-1811

Both of them generally show up at such affairs and I hoped it might result in a real "old time get-together" of the Ellington Field clan.

A lot of water has gone over Niagara Falls since I last saw you at Ellington and it certainly would be nice seeing you again, maybe we could fight World War I all over again and put the world on a paying basis.

We are expecting an attendance of about 700 at the deForest dinner, with every big shot of the entire radio and television Manufacturers and broadcasters present. The wives, daughters and sweethearts of many of them will also be in attendance, because no red blooded radio man likes a "stag" affair, so maybe you would like to change your minds and come after all.

With kind personal regards and hoping to see you soon, I am

Sincerely,

E. N. Pickerill

Whenever you might happen to be in New York give me a call at my home: The number in Garden City 3-3949.

Joe - Baldwin 3-1980

Tuska Mercer Rd R-3 Princeton # 3152

seating dress

The De Forest Pioneers

AND

American Institute of Electrical Engineers
The American Radio Relay League
The Institute of Radio Engineers
National Association of Radio and Television Broadcasters
Radio-Television Manufacturers Association
Society of Motion Picture and Television Engineers
Veteran Wireless Operators Association

cordially invite you to attend a

Testimonial Dinner

in honor of

Dr. Lee de Forest

Tuesday, April Eighth
Nineteen Hundred and Fifty-two

The Waldorf-Astoria
Starlight Roof
Fiftieth Street and Park Avenue, New York

RESERVATIONS $12.50
R.S.V.P.

RECEPTION 6:30 P.M.
DINNER 7:30 P.M.

A Bust of Dr. de Forest
Sculptured by
Frederic Allen Williams
Will Be Unveiled and Presented to
Yale University

Presentation

MR. E. N. PICKERILL
President of The De Forest Pioneers

Acceptance

MR. IRVING S. OLDS
Chairman, United States Steel Corporation
Fellow of the Yale Corporation

SPEAKERS

THE HONORABLE HERBERT HOOVER
Former President of the United States

THE HONORABLE CHARLES EDISON
Former Governor of the State of New Jersey

DR. LEE DE FOREST

Presiding

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