(Programs listed in The Wisconsin State Journal are checked to the last possible moment. Changes may be made, however, at the discretion of stations and networks.)

What's on the Air

FREQUENCIES

WIBA	1310	WCFL	1000	KMOX	1120
WHA	970	WIBU	1240	WGN	720
WLW	700	WENR	890	WIND	560
WBBM	780	WTMJ	620	WJJD	1160
WCCO	830	WMAQ	670	WLS	890

Tonight's Aces

Special Events

9:30 p. m.—The Land Is Bright (WBBM): war bond show with Fred Allen, Dinah Shore, Frank Sinatra, Bob Hawk, Phil Baker, Warren Hull, Irene Beasley, Sgt. Mel Allen, Danny O'Neil, Texas cowboys.

◇ ◇ ◇

Music

6:30 p. m.—Everything for the Boys (WIBA): new show with Dick Haymes, Gordon Jenkins orchestra; Helen Forrest, guest; "San Fernando Valley," "The Man I Love" . . . **American Melody Hour** (WBBM): "Long Ago and Far Away," "Louise."

8:30 p. m.—Spotlight Bands (WENR): Louis Prima.

10:30 p. m.—Sinfonietta (WIBU): "Symphony No. 2," Haydn.

◇ ◇ ◇

Drama

7 p. m.—Big Town (WBBM): phony doctor victimizes war workers.

8 p. m.—Famous Jury Trials (WIBA): fellow actor charged with on-stage murder . . . **Mystery Theater** (WMAQ): "Death Talks Out of Turn."

8:30 p. m.—The Doctor Fights (WBBM): Raymond Massey tells story of "Glider Doctor"—D-day tale.

9 p. m. — Norman Corwin (WBBM): presents "Whitman," with Charles Laughton as narrator.

12 p. m. — Creeps by Night (WENR): Florence Reed in "The Three Sisters," in which a woman looks beyond the grave.

◇ ◇ ◇

Variety

7 p. m. — Johnny Presents (WIBA): Ginny Simms; Seabees make Jimmy Carrick their mascot.

DICK HAYMES
WIBA at 6:30

7:30 p. m. — Duffy's Tavern (WLS): with Brian Donlevy . . . **Judy Canova** (WBBM): "Put on Your Old Grey Bonnet."

8 p. m.—Jack Pepper (WBBM): new series with Jeri Sullavan, Murphy sisters, Mitchell Ayres orchestra.

9 p. m. — Charlotte Greenwood (WIBA): with Jack Carson.

9:30 p. m.—Hildegarde (WIBA): and Eddie Cantor.

◇ ◇ ◇

Sports

11:15 p. m. — One for the Book (WMAQ): Sam Balter.

◇ ◇ ◇

Wednesdaytime

10:45 a. m. — What's Your Idea? (WIBU): Dr. G. Marshall Crawford on suntanning.

2 p. m. — Poetry of America (WHA): James Gould Fletcher and "H.D."

5:15 p. m. — To Your Good Health (WBBM): "Love at Second Sight," "Irrestistible You," "Thanks for the Memory."

WIBA TONIGHT

5:30 News Edition
5:45 Sports Parade
5:55 News Report
6:00 NBC Music Shop
6:15 Dinner Melody
6:30 NBC Dick Haymes & Orchestra
7:00 NBC Johnny Presents
7:30 NBC A Date with Judy
8:00 BLUE Famous Jury Trials
8:30 NBC Fibber McGee & Molly
9:00 NBC Charlotte Greenwood
9:30 NBC Hildegarde
10:00 Night News Edition
10:15 BLUE Raymond Gram Swing
10:30 Treasury Salute
10:45 Serenade
11:00 NBC News Report
11:05 Masterworks
11:30 NBC Roy Shield Orch.
11:55 NBC News Report

OTHER STATIONS TONIGHT

5:15 Malcolm Claire—WENR
5:15 Safety Legion—WGN
5:15 University Special—WIBU
5:15 Edwin C. Hill—WBBM WCCO
5:30 Tom Mix—WGN WIBU
5:30 Jack Armstrong—WENR
5:45 Superman—WGN
5:45 Capt Midnight—WENR
6:00 Fulton Lewis, Jr.—WIBU
6:00 Music Shop—WTMJ
6:00 Jim Blade Music—WMAQ
6:15 Lum and Abner—WIBU
6:15 Passing Parade—WBBM
6:30 Let Yourself Go—WLS
6:30 Supper Concert—WMAQ
6:30 Those Who Serve—WTMJ
6:30 American Melody Hour—WBBM
6:45 H. V Kaltenborn—WMAQ
7:00 Confidentially Yours—WGN
7:00 Johnny Present—WTMJ WMAQ
7:00 Big Town—WBBM WCCO
7:15 Lum and Abner—WLS
7:15 Return of Nick Carter—WGN
7:30 Victory Jamboree—WIBU
7:30 A Date With Judy—WMAQ
7:30 Pick and Pat Time—WGN
7:30 Judy Canova—WBBM WCCO
7:30 Duffy's—WLS
8:00 Jack Pepper—WBBM
8:00 Mystery Theater—WMAQ
8:00 Famous Jury Trials—WENR
8:00 Gabriel Heatter—WGN, WIBU
8:15 Screen Test—WGN
8:15 Today's American Hero—WIBU
8:30 American Forum of the Air—WIBU, WGN
8:30 The Doctor Fights—WBBM
8:30 Fibber McGee—WMAQ WTMJ
8:30 Spotlight Bands—WENR
8:55 Storyteller—WENR
9:00 Raymond Gram Swing—WENR
9:00 Columbia Presents Corwin—WBBM
9:00 Charlotte Greenwood—WMAQ
9:15 Chester Bowles—WCFL
9:30 Hildegarde—WTMJ WMAQ
9:30 Halls of Montezuma—WIBU
9:30 Crime Files of Flamond—WGN
9:30 War Bond Program—WBBM
10:00 San Quentin Program—WIBU
10:00 Music Shop—WMAQ
10:00 Fulton Lewis, Jr.—WGN
10:00 I Love a Mystery—WBBM
10:30 Everything for the Boys—WMAQ
10:15 King's Jester & Janette—WBBM
10:30 Sinfonietta—WIBU
10:45 Salute to Victory—WBBM
10:45 Rumpus Room—WTMJ
11:05 Buffalo Present—WBBM
11:10 Carmen Cavallaro Orch.—WGN
11:15 One for the Books—WMAQ
11:15 Gay Claridge Orch.—WENR
11:30 Don Reid Orch.—WGN
11:30 Jimmie Hilliard Orch.—WBBM
11:30 Addie Oliver Orch.—WENR
11:30 Roy Shield Orch—WMAQ
12:00 Creeps by Night—WENR
12:00 Nite Watch (to 6) WIND
12:05 Concert Promenade—WMAQ
12:05 Henri Gendron Orch.—WBBM
12:05 Benny Strong Orch.—WGN
12:30 Ol Trace Orch.—WGN
12:30 Bill Snyder Orch.—WBBM
12:30 Woody Herman Orch.—WENR
12:45 Eddie Ashmun Orch.—WGN
1:00 Melody Time—WGN
1:00 News and Music (to 2:10)—WBBM
1:00 Another Dance and News—WENR

WIBA WEDNESDAY

MORNING

6:00 Morning Variety
6:30 News Report
6:35 Interlude
6:45 Patsy & Her Guitar
7:00 NBC World News
7:15 Trading Post
7:25 Interlude
7:30 State Journal News Edition
7:50 Musical Clock
8:30 Contests
8:35 Interlude
8:45 Shopping Guide
9:00 The Gospel Twins
9:15 Ration Reporter
9:30 Curtain Calls
10:00 NBC Road of Life
10:15 State Medical Society
10:30 News
10:40 Interlude
10:45 NBC David Harum
11:00 Linda's First Love
11:15 Mary Foster
11:30 Farm Roundup

AFTERNOON

12:00 News Report
12:05 Farm Roundup
12:15 Farm Service
12:30 Noon News Service
12:50 Interlude
1:00 NBC Guiding Light
1:15 NBC Today's Children
1:30 NBC Women in White
1:45 Jan Loring
2:00 NBC A Woman of America
2:15 NBC Ma Perkins
2:30 Music of the Day
2:45 NBC Right to Happiness
3:00 NBC Backstage Wife
3:15 NBC Stella Dallas
3:30 NBC Lorenzo Jones
3:45 NBC Young Widder Brown
4:00 Campus Jamboree

EVENING

5:00 WIBA Rangers
5:30 News Edition
5:45 Sports Parade
5:55 News Report
6:00 NBC Music Shop
6:15 NBC News of the World
6:30 Dinner Melody
6:45 NBC H. V. Kaltenborn
7:00 NBC M. & Mrs. North
7:30 NBC Beat the Band
8:00 NBC Eddie Cantor
8:30 NBC Mr. District Attorney
9:00 NBC Kay Kyser
10:00 Night News and Edition
10:15 BLUE Raymond Gram Swing
10:30 NBC Arthur Hopkins Presents
11:30 NBC Design for Dancing
11:55 NBC News Report

OTHER STATIONS WEDNESDAY

—MORNING—

5:00 Farm Service—WLS
5:00 Top o' The Morning—WTMJ
5:15 Everett Mitchell—WMAQ
5:15 Morning Devotions—WLS
5:30 Back to the Bible—WIND
7:00 Pats Gallicchio—WMAQ
7:01 Farm Service—WIBU
7:45 Dr. Preston Bradley—WLS
8:00 Your Neighbor—WMAQ
8:00 Musical Clock—WIBU
8:30 Breakfast Club—WLS
9:00 Haven of Rest—WJJD
9:00 Lora Lawton—WMAQ WTMJ
9:00 Hebrew Christian Hour—WIBU
9:00 Sweet River—WLS
9:00 Vallant Lady—WBBM WCCO
9:15 Light of the World—WBBM
9:15 My True Story—WLS
9:30 Open Door—WBBM
9:30 Echoes from the Tropics—WMAQ
9:45 Listening Post—WLS
9:45 Star Playhouse—WMAQ
9:45 Bachelor's Children—WBBM
10:00 Honeymoon Hill—WBBM
10:00 Road of Life—WMAQ WTMJ
10:00 Breakfast at Sardi's—WLS
10:15 Vic and Sade—WMAQ
10:15 Second Husband—WBBM WCCO
10:30 Brave Tomorrow—WMAQ
10:30 Bright Horizon—WBBM WCCO
10:45 Baby Institute—WCFL
10:45 What's Your Idea?—WIBU
10:45 David Harum—WMAQ WTMJ
10:45 Aunt Jenny's Stories—WBBM
11:00 Kate Smith Speaks—WBBM
11:00 Guiding Light—WTMJ
11:00 The Editor's Daughter—WMAQ
11:00 Boake Carter—WGN WIBU
11:00 Martha and Helen—WLS
11:15 Farm Hour—WIBU
11:15 Big Sister—WBBM WCCO KMOX
11:15 Rhymster Time—WGN
11:15 Linda's First Love—WMAQ
11:15 Today's Children—WTMJ
11:30 Helen Trent—WBBM WCCO
11:45 Our Gal Sunday—WBBM WCCO
11:45 Reveille Roundup—WMAQ

—AFTERNOON—

12:00 Dinner Bell Time—WLS
12:00 Elizabeth Hart Presents—WMAQ
12:00 Life Can Be Beautiful—WBBM
12:00 The Grenadiers—WTMJ
12:15 Jack Berch—WGN
12:15 Ma Perkins—WBBM WCCO
12:30 Avenue of Allies—WCFL
12:30 Luncheon with Lopez—WGN
12:30 Bernardine Flynn—WBBM
12:30 Loop Noonday Service—WJJD
12:45 Bondwagon—WMAQ
12:45 The Goldbergs—WBBM WCCO
1:00 Farm Service—WIBU
1:00 Life Can Be Beautiful—WTMJ
1:00 Guiding Light—WMAQ
1:00 Portia Faces Life—WBBM
1:15 Joyce Jordan—WBBM WCCO
1:15 Today's Children—WMAQ
1:15 The Goldbergs—WTMJ
1:25 Cubs vs. St. Louis—WJJD
1:30 Woman in White—WMAQ
1:30 Aunt Jenny—WTMJ
1:30 Jack Berch Show—WIBU
1:30 Young Dr. Malone—WBBM
1:45 Hymns of All Churches—WMAQ
1:45 Perry Mason—WBBM KMOX
2:00 Mary Marlin—WBBM KMOX
2:00 Morton Downey—WLS
2:00 Woman of America—WMAQ
2:15 Cleveland vs. Tigers—WIND
2:15 Hollywood Star Time—WLS
2:15 Ma Perkins—WMAQ WTMJ
2:30 Pepper Young—WMAQ WTMJ
2:30 Appointment with Life—WCFL
2:45 Right to Happiness—WMAQ
3:00 Broadway Matinee—WBBM
3:00 Backstage Wife—WMAQ WTMJ
3:15 Don Norman Show—WENR
3:15 Stella Dallas—WMAQ WTMJ
3:30 Judy and Jane—WGN
3:30 Lorenzo Jones—WMAQ WTMJ
3:45 Widder Brown—WTMJ WMAQ
4:00 Mystery Chef—WENR
4:00 Safety Legion—WIBU
4:00 When A Girl Marries—WMAQ
4:15 We Love and Learn—WMAQ
4:15 Rent Control—WIBU
4:30 Parade of Bands—WIBU
4:30 Just Plain Bill—WMAQ WTMJ
4:45 Wilderness Road—WBBM
4:45 Front Page Farrell—WMAQ
4:45 American Women—WBBM
4:45 Dick Tracy—WENR
4:45 Parade of Bands—WIBU

—EVENING—

5:00 Terry and the Pirates—WENR
5:15 Malcolm Claire—WENR
5:15 Lyn Murray Orch.—WBBM
5:15 University Special—WIBU
5:15 Safety Legion—WGN
5:30 Jack Armstrong —WENR
5:30 Tom Mix—WIBU WGN
5:45 Superman—WGN WIBU
5:45 Capt. Midnight—WENR
6:00 Music Shop—WTMJ
6:00 Fulton Lewis, Jr.—WIBU
6:00 Jim Blade Music—WMAQ
6:15 Passing Parade—WBBM
6:30 Supper Interlude—WMAQ
6:30 Easy Aces—WBBM KMOX
6:30 Lone Ranger—WLS
6:45 Ration Reporter—WIBU
6:45 The Lion's Roar—WGN
6:45 H. V. Kaltenborn—WMAQ
7:00 Allan Jones, Frankie Carle—WBBM
7:00 Victory Jamboree—WIBU
7:00 Mr. & Mrs. North—WMAQ WTMJ
7:15 Return of Nick Carter—WGN
7:15 Your Reporter—WIBU
7:15 Lum and Abner—WLS
7:30 Xavier Cugat—WGN
7:30 Beat the Band—WMAQ WTMJ
7:30 Dr. Christian—WBBM WCCO
7:30 My Best Girls—WLS
8:00 Jack Carson—WBBM
8:00 Gabriel Heatter—WGN WIBU
8:00 Dunninger—WENR
8:00 Eddie Cantor—WMAQ WTMJ
8:15 Screen Test—WGN
8:15 Today's American Hero—WIBU
8:30 Mildred Bailey—WBBM
8:30 First Nighter—WGN WIBU
8:30 Mr. District Attorney — WMAQ
8:30 Spotlight Bands—WENR
8:55 Storyteller—WENR
9:00 Royal Arch Gunnison—WIBU
9:00 Arch Ward's Sports—WGN
9:00 Raymond Gram Swing—WENR
9:00 Kay Kyser—WMAQ WTMJ
9:00 Great Moments in Music—WBBM
9:15 Ted Malone—WENR
9:15 Victory is Our Business—WCFL
9:30 Northerners—WGN
9:30 Soldiers With Wings—WCFL
9:30 Report to the Nation—WBBM
10:00 Music Shop—WMAQ
10:00 Radio Newsreel—WIBU
10:00 Answer Man—WGN
10:00 I Love a Mystery—WBBM
10:15 Story Drama—WENR
10:15 So the Story Goes—WBBM
10:30 Treasury Salute—WENR
10:30 Playtime—WMAQ
10:45 Rumpus Room—WTMJ
10:45 Serenade and Swing—WBBM
11:05 Petrillo, Janette and MacCormack—WBBM
11:10 Benny Strong Orch.—WGN
11:15 Gay Claridge Orch.—WENR
11:15 One for the Books—WMAQ
11:20 Little Night Music—WMAQ
11:30 Words at War—WMAQ
11:30 Ray Benson Orch.—WBBM
11:30 Eddie Oliver Orch.—WENR
11:30 Carmen Cavallaro Orch.—WGN
12:00 Say It With Music—WENR
12:00 Nite Watch (to 6)—WIND
12:05 Promenade Concert—WMAQ
12:05 Henri Gendron Orch.—WBBM
12:05 Chuck Foster Orch.—WGN
12:30 Bill Snyder Orch.—WBBM
12:30 Dance Orch.—WGN
1:00 News and Music—WBBM
1:00 Music, News (to 3)—WENR
1:00 Melody Time—WGN

NEWS BROADCASTS

TONIGHT

5:00 WBBM 9:00 WENR
5:00 WMAQ WGN 9:00 WIND WCFL
5:01 WIBU 10:00 WIBU WENR
5:15 WMAQ WBBM 10:00 WGN WIND
5:30 WIBA WBBM 10:00 WIBA WTMJ
5:30 WCCO KMQX 10:15 WIBA WMAQ
5:30 WTMJ 10:15 WCCO KMOX
5:45 WBBM WMAQ 10:30 WGN WBBM
5:45 WHA 10:45 WENR WGN
5:55 WIBA 11:00 WENR WIBA
5:55 KMOX WBBM 11:00 WMAQ
6:00 WBBM WIBU 11:00 WBBM WTMJ
6:00 WLS WIND 11:00 WGN KMOX
6:15 WTMJ WMAQ 11:00 WCCO WIND
6:30 WIBU WGN **11:55 WIBA WENR**
6:45 WMAQ 12:00 WMAQ
7:00 WLS 12:00 WGN WBBM
7:25 WIBU 12:55 WMAQ WENR
7:30 WIND 1:00 WIND
7:55 KMOX WBBM 1:00 WBBM
8:00 WGN 2:00 WIND (also 3, 4, 5)

WEDNESDAY

A. M.	1:30 WLS
5:30 WMAQ WIND	1:45 WGN
5:45 WGN	1:55 WTMJ
6:00 WIND WMAQ	2:45 WLS
6:05 WTMJ	3:00 WGN WIBU
6:25 WGN	3:30 WCFL WBBM
6:30 WIBA	3:45 WBBM
6:30 KMOX WTMJ	4:00 WGN
6:45 WLS	4:15 WENR
6:55 WBBM WMAQ	5:00 WGN WMAQ
7:00 KMOX WIND	5:00 KMOX WBBM
7:00 WBBM WTMJ	5:01 WIBU
7:00 WIBA WLS	5:15 WMAQ
7:15 WGN	5:30 WCCO WBBM
7:15 WCCO WBBM	5:30 WTMJ WIBA
7:30 WIBA WTMJ	5:45 WHA
7:45 WHA	5:45 WMAQ WBBM
7:55 WMAQ WTMJ	5:55 WIBA
8:00 WIND KMOX	5:55 KMOX WBBM
8:00 WBBM WGN	6:00 WBBM WIBU
8:15 WMAQ WLS	6:00 WLS WIND
8:25 WTMJ	6:15 WIBA
8:30 WMAQ	6:15 WMAQ WTMJ
8:35 WMAQ	6:30 WIBU WGN
8:45 WBBM	6:45 WIBA WMAQ
8:55 KMOX	7:00 WLS
9:00 WIND WGN	7:00 WGN WIND
9:15 WTMJ WMAQ	7:25 WIBU
9:15 WHA WCFL	7:30 WIND WCFL
9:40 WGN	7:55 KMOX WBBM
9:50 WHA	8:00 WIBU
10:00 WIBU	8:00 WGN WIND
10:00 WIND WJJD	9:00 WCFL
10:30 WLS WIBU	9:00 WENR WIBU
10:30 WIBA	9:15 WENR
10:45 WLS	10:00 WIBU WENR
10:55 WIBU	10:00 WIBA WTMJ
11:00 WIND WGN	10:15 WMAQ WIBA
11:00 WJJD WIBU	10:30 WGN WBBM
11:30 WGN WMAQ	10:45 WGN WENR
P. M.	11:00 WENR WBBM
12:00 WCFL WGN	11:00 WGN WMAQ
12:03 WIND WIBA	11:00 WIND WCCO
12:15 WIBU	11:00 WTMJ KMOX
12:20 WHA	11:55 WIBA WENR
12:30 WLS	12:00 WMAQ
12:30 WBBM WIBA	12:00 WGN WBBM
12:30 WMAQ WCCO	12:55 WTMJ
12:45 WCFL	12:55 WENR WMAQ
12:55 WTMJ	1:00 WBBM WIND
1:00 WGN	2:00 WIND (Also 3, 4, 5)
1:00 WIND WCFL	

SPORTS REVIEWS

TONIGHT

5:00 WJJD WIND 6:05 WBBM
5:40 WMAQ 7:00 WIND
5:45 WIBA WTMJ 9:00 WIND
6:00 KMOX WJJD

WEDNESDAY

P. M.

2:05 WIND 6:00 WJJD KMOX
3:30 WJJD 6:05 WBBM
5:00 WIND 6:25 WCFL
5:40 WMAQ 7:00 WIND
5:45 WTMJ WIBA 9:00 WGN

MARKETS

WEDNESDAY

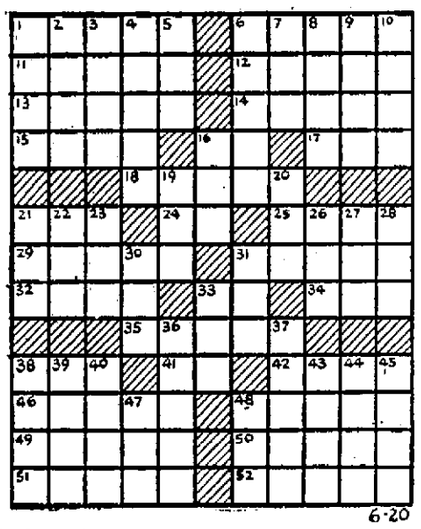
A. M.	P. M.
6:25 KMOX	12:00 WIBU
11:30 WLS	12:10 WIBU
11:45 WLS	12:15 WIBA
	12:40 WIBU
	12:45 WGN WIBA
	12:50 WLS
	1:10 WLS

Tonight!
THE NEW PEPSODENT SHOW STARRING
Charlotte Greenwood
WITH MATTY MALNECK AND HIS BAND
AND THE FAMOUS "HITS AND A MISS"
WIBA 9:00 P. M.

ACROSS
1. Seizes
6. Strings
11. Mechanical man
12. Farewell
13. Substance of 2 or more metals
14. To man again
15. Encounter
16. King of Bashan
17. Antlered animal
18. Long-legged bird
21. Simpleton
24. Siberian gulf
25. Precious stone
29. Thrashes
31. Pointed arch
32. Destiny
33. Land-measure
34. Obtain
35. Held fast
38. Newt
41. All correct
42. Mohammedan prince
46. Sharp
48. Sheeplike
49. To wind around a pin (Naut.)
50. Kind of lily
51. Contest (hyphen.)
52. Questioned

DOWN
1. Unit of weight
2. Part
3. Skillful
4. Small enclosure
5. Pig pen
6. Freight
7. Poem
8. White frost
9. To distribute
10. Submerged
16. Sphere
19. Goddess of dawn
20. Wooden pin
21. Away
22. A wing
23. Obese
26. Swine
27. Hail!
28. Permit
30. Affirmative reply
31. Grampus
33. Diving bird
36. Capital of Japan
37. Ceremonial chambers (Pueblo)
38. Subsides
39. Liberate
40. Slant
43. Valuable fur
44. Girl's name
45. A drink
47. Perched
48. Tuber (So. Am.)

Yesterday's Answer



CRYPTOQUOTE—A cryptogram quotation

JK'I D IEVVKIICES MDYYNHY DAP JDI GJK IHSPNKYI' JKDYGI—PYFPKA.

Yesterday's Cryptoquote: FOR SORROW, LONG-INDULGED AND SLOW, IS TO HUMANITY A FOE—J. LANGHORNE.

Distributed by King Features Syndicate, Inc.

American War Planes

WRIGHT FIELD, Ohio — This is one of a series of brief sketches of American warplanes produced under the supervision of the AAF Materiel Command, which is charged with the development, procurement, production and inspection of all Army Air Forces equipment. Authoritative data on a different plane will appear daily.

THE C-54 "SKYMASTER"

This cargo plane has an exceptionally long range, and has been used extensively in the trans-Atlantic cargo runs. Because of its range, it has also been used to ferry important personages and other personnel.

DESCRIPTION — Four-engine transport constructed as a large all-metal, low-wing monoplane with large single tail. Hydraulically operated flaps and nose wheel. Tricycle landing gear. Crew of six. Manufactured by Douglas. Military adaption of the DC-4 commercial airliner.

DIMENSIONS — Span: 117 feet, 6 inches. Length: 93 feet, 10 inches. Tread width: 25 feet. Wing area: 1,461 square feet. Approximate maximum weight: 60,000 pounds.

POWER PLANT — Four Pratt & Whitney twin-wasp R-2000 engines, 1,350 hp. 14-cylinder air-cooled with two-speed supercharger. Hamilton Standard 3-bladed automatic full-feathering propellers.

PERFORMANCE — Rated at a speed of over 275 miles per hour. Service ceiling over 20,000 feet. Tactical radius of action 1,000 miles.

Britain is urging the production of more wooden ties for its railroads.

KERRY DRAKE, JOE PALOOKA, BRICK BRADFORD, THE NEBBS, JUST KIDS, SKIPPY, HENRY

Uncle Ray's Corner

Shoulder Took "Kick" After Stock Was Fitted to Hand Cannon

In the year 1430, an Italian made a note about certain weapons which had come on the battlefield. He had watched soldiers attacking a town near Pisa.

"The defenders," he wrote, "used a new weapon. In their hands they held a block of wood about four and a half feet long. Fastened to it was an iron tube filled with sulphur and saltpeter. This tube threw out iron bullets by the force of fire.

"The blow, when it struck, brought certain death. Neither armor nor shield could protect a man against it. More than once a single bullet went through a file of two or three soldiers."

The use of gunpowder seemed new to that Italian, but gunpowder had been used in several battles before the note was written. The armies of Edward III, a British king, had used small cannon in warfare a century before.

In those days, news traveled slowly. People learned little about gunpowder weapons until they saw them in action.

The hand cannon of which we spoke yesterday grew popular in some armies of Europe. A record tells us that the Duke of Burgundy had 4,000 soldiers who carried hand cannon in 1411.

One trouble about the hand cannon was the fact that it "kicked" too much. A soldier had a hard time holding it in his hands when the gunpowder exploded.

To take care of that trouble, an inventor made a stock to be placed behind the barrel. This stock was of wood. It could be fitted to the shoulder, and the shoulder took the "kick" when the weapon was fired.

Thus muskets of a sort were made. They came to be common weapons of foot soldiers in Europe.

The name "harquebus" or "arquebus" was used for a musket in France.

The musket may be classed as an ancestor of the rifle. Yet the true rifle has grooves inside the barrel, we say that it has been "rifled." Spiral grooves give a bullet a turning motion which carries it better toward its mark.

Rifles were first made about 400 years ago. For a long time they were used only for hunting and for shooting at targets. Then they came on the battlefield.

SCOTT'S SCRAP BOOK By R. J. Scott

(For GENERAL INTEREST or HISTORY section of your scrapbook.)

Uncle Ray

Tomorrow: The Potter's Wheel.