RADIO BROADCASTING NEWS

Regular schedule of WJAM, The Evening Gazette–Iowa Railway and Light company radiophone station (wave length, 268; D. M Perham, engineer): market reports, daily except Sunday, 10, 11:30 and 1:30; Story Hour, conducted by Miss Blanche Loomis, Tuesday, Thursday and Saturday, 6 to 6:30, other programs to be announced (Central standard time.)

FEATURES TONIGHT

(ALL LOCAL TIME.)
(Also See WJAM Program.)

7:15, **WLS** (345) Chicago, WLS theater, operetta.
7:20, **WCX** (516) Detroit, musical program.
8, **KYW** (535) Chicago, "twenty minutes of good reading."
8:15, **WOI** (360) Ames, men's glee club.
8:30, **WGY** (380) Schenectady, banquet Automobile Engineering society.
9, **WOC** (498) Davenport, Schuster sisters.
9:30-11, **KFKX** (291) Hastings, Hastings dance orchestra.
10-11:30, **KYW** (535) Chicago, evening at home.
11, **WOC** (498) Davenport, Le Claire hotel orchestra, Peter Mac Arthur.
12, **WSAI** (309) Cincinnati, popular songs.

REQUEST PROGRAM BY M'DONALD, BLUE BIRD ORCHESTRA ON WJAM

This is the night fans who tuned in George McDonald last Thursday have been anticipating with delight. The popular young local pianist will be on WJAM, The Gazette-Light company again, playing a program of popular numbers from 7 to 9:15 o'clock

Request numbers will be played by "Mac," he promises, and he has also intimated that some surprise features are in store, although he has not said what they would be. The telephone number at the studio is 5706.

The Blue Bird orchestra of Iowa City, which made a hit in its previous appearance in the city, will be on the air from Dreamland ballroom between 9:30 and 10:30

NOTICE OF APPOINTMENT OF ADMINISTRATOR WITH WILL ANNEXED.

State of Iowa, Linn County, ss

Notice is hereby given that the undersigned has been on this 7th day of January, 1925 duly appointed and qualified as Administrator with Will annexed of the estate of Frederick Braun late of Linn County, Iowa, deceased All persons indebted to said estate are requested to make immediate payment, and those having claims against the same will present them, duly authenticated, to the undersigned for allowance

OTTO SIKORA.
Administrator with Will Annexed

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RADIO MANUAL

BY
ORRIN E. DUNLAP, JR.
Radio Editor of the New York Times.

(Continued From Yesterday.)

Transmitting Clocks

On the first floor of the Naval Observatory there are two transmitting clocks Only one is used, but the other stands ready in the event the one in operation gets out of order. Eastern Standard Time, or 75th meridian time, is taken from the master clock in the vault below and by means of the transmitting clock, connected by wires with the Naval radio station at Arlington, Virginia, time is broadcast into the ether. Each tick of the clock completes the electrical circuit and a radio dot is sent simultaneously into space on the 2650-meter wave length.

Despite its great speed, radio cannot supply absolutely correct time, because of what is known as the "rate" of the clock, together with a mere fraction of a second which is lost in the relay. These very minute losses simply show that Father Time does not wait for even the quickest of mechanical parts to operate

The Naval radio station at Key West was formerly connected with Arlington by land wires so it could send out time signals. The Florida signals lagged about twenty-eight hundredths of a second behind those of Arlington The fraction of a second lost in the operation of several relays which connect the southern station with Washington Key West transmitted time on 2000 meters, so that on a winter night, when atmospheric conditions were well suited for radio, northern receiving stations could be tuned to hear both Arlington and Key West time signals, the dot from the far south lagging a trifle behind that from Virginia. Key West now receives time signals from Annapolis by radio, amplifies the impulses, and rebroadcasts them

All navigators must have accurate time in order to know their longitude and latitude at sea. Longitude is the determination of the difference between local time and time of another locality. Local time is calculated by sextant observation of the sun, a star, or planet The difference between local time and the world's standard time, at the zero meridian in Greenwich, England, is the longitude at sea. If the ship's chronometer, a timepiece of the highest attainable precision, is inaccurate the navigator will find it difficult to determine the ship's position

Time signals twice daily from the Arlington station render a great service to mariners because the best chronometers become inaccurate through the changes of temperature and barometric pressure, as well as from the vibration and tossing of the ship. A vessel three thousand miles off the eastern coast of the United States can intercept Arlington time signals with a variation of less than one two-hundredths of a second

Arlington broadcasts time signals from 11:55 to noon, and from 9:55 to 10 p m. Eastern Standard time Each second's tick from the Washington clock forms a dot on the radio, which produces in the phones at receiving stations a clear, tick-like sound of a clock. The twenty-ninth second of each minute is omitted to make clear the passing of the half-minutes. The last five seconds of the first four minutes are also omitted to make more noticeable the passing of each minute. The last ten seconds of the fifth minute are dropped leaving ten seconds of silence, which is broken by a dash exactly at noon and at ten o'clock. By following the ticks an operator can check his watch and set it to the exact second.

Operators on board ships in the Pacific have been able to catch the midnight time signal from Honolulu and by quick-tuning adjustment pick up the noon time tick from station POZ, Nauen, Germany. Eiffel Tower's (Paris) midnight signal is broadcast at 6:49 p. m., Eastern Standard Time, and Pearl Harbor's (Hawaii) noon signal at 7:00 p. m., Eastern Standard Time. The time difference between the two stations is twelve hours and the distance about eight thousand miles. By quick tuning, a long-wave receiving set in the United States can hear both signals.

Many of the radiophone broadcasting stations intercept Arlington time signals amplify them, and then re-broadcast them on lower wave lengths, so they are within reach of low wave-length receivers, designed to pick up only the broadcasting stations.

(Continued tomorrow)

ON THE AIR TOMORROW

(Courtesy Radio Digest By Associated Press All Central Time.)

6, **WGR** (319) Buffalo, music
6, **WMAQ** (448) Chicago, music
6, **WGN** (370) Chicago, organ
6, **WWJ** (513) Detroit, orchestra, soloists, poetry
6, **WHN** (360) New York, orchestra
6, **WJZ** (455) New York, Savarin ensemble
6, **WEBJ** (273) New York, play review
6, **WOR** (405) Newark, orchestra, sports.
6, **KGO** (312) Oakland, concert
6, **WOAW** (526) Omaha, story
6:15, **WEBJ** (273) New York, orchestra.
6:30, **WGN** (370) Chicago, concert.
6:30, **WCCO** (417) Mpls., concert.
6:30, **WOAW** (526) Omaha, music.
6:30, **WCAE** (462) Pittsburgh, Uncle Kayhoe
6:35, **KPO** (423) Frisco, orchestra.
6:35, **KYW** (536) Chicago, Uncle Bob.
6:55, **WNYC** (526) New York, musical.
7-8, **WMAQ** (448) Chicago, concert
7, **KYW** (536) Chicago, concert.
7, **WBAV** (423) Columbus, orchestra, reader
7, **WOC** (498) Davenport, sandman.
7:15, **WJZ** (455) New York, legislative review
7:15, **WEBJ** (273) New York, songs.
7:15, **WOAW** (526) Omaha, sports.
7:15, **WDAR** (395) Philadelphia, play.
7:30-9, **WHO** (522) Des Moines, instrumental trio, quartet, vocal.
7:30-8:30, **WBAP** (476) Ft. Worth, mandolin orchestra.
7:30-9, **WHAS** (400) Louisville, concert.
7:30, **WCCO** (417) Mpls., talk.
7:30, **WNYC** (526) New York, talk, dance.
7:30, **WEAF** (492) New York, Navy band
7:30, **KGO** (312) Oakland, girls' half hour
7:30, **WOAE** (462) Pittsburgh, musical.
7:30, **CNRT** (400) Toronto, string quartet, vocal, address.
7:45, **WEBJ** (273) New York, novelty.
8, **KFDM** (306) Beaumont, band
8, **WMAQ** (448) Chicago, Wide Awake club.
8, **KYW** (536) Chicago, speeches, revu.
8, **WGN** (370) Chicago, classical.
8, **KNX** (337) Hollywood, concert.
8, **WOS** (441) Jefferson City, musical.
8, **KHJ** (395) Los Angeles, concert.
8, **KFOA** (455) Seattle, concert
8, **KSD** (549) St Louis, concert, baritone, pianist
8:30, **WMAQ** (448) Chicago, musical geography
8:30, **WFAA** (476) Dallas, vocal.
8:30-10, **KTHS** (375) Hot Springs, recital, orchestra
8:30, **WHN** (360) New York, dance.
8:30, **WDAR** (395) Philadelphia, concert
8:30, **WCAE** (462) Pittsburgh, baritone, trio.
8:45, **KFI** (469) Los Angeles, organ.
8:45, **WNYC** (526) New York.
9, **KOA** (323) Denver, program arranged by Gyro club, orchestra, songs, talks.
9, **WMAQ** (448) Chicago, Christian Endeavor program
9, **WOC** (498) Davenport, music.
9, **WCCO** (417) Mpls., entertainers.
9, **WHN** (360) New York, fashion chat.
9, **WJZ** (455) New York, orchestra.
9, **WOAW** (522) Omaha, violinist.
9, **WJY** (405) New York, orchestra.
9:05, **WDAR** (395) Philadelphia, music.
9:15, **WMAQ** (448) Chicago, music.
9:30-10:45, **WBAP** (476) Ft. Worth, band.
9:30, **WHN** (360) New York, orchestra.
9:30, **WNJ** (233) Newark, orchestra.
9:30, **CNRT** (400) Toronto, orchestra.
9:35, **WNYC** (526) New York, orchestra.
10, **KFAU** (275) Boise, program.
10-2, **WQJ** (448) Chicago, entertainers.
10, **WGN** (370) Chicago, jazz.
10, **KNX** (337) Hollywood, features.
10, **KFI** (469) Los Angeles, dance.
10, **KHJ** (395) Los Angeles, glee club.
10, **WHN** (360) New York, music.
10, **WEAF** (492) New York, Club Lido Venice.
10, **WNJ** (233) Newark, entertainers.
10:30, **WGR** (319) Buffalo, dance.
10:30, **WNJ** (233) Newark, band.
10:30, **WOAW** (522) Omaha, orchestra.
10:30, **KFOA** (455) Seattle, concert.
11-2:30, (535) Chicago, Coon-Sanders orchestra, organ.
11, **WNJ** (233) Newark, orchestra.
12, **KNX** (337) Hollywood, amateurs.
12, **KFI** (469) Los Angeles, quartet.
12, **KHJ** (395) Los Angeles, orchestra.
1 a. m., **KNX** (337) Hollywood, orchestra.

"SUB" SAILOR LIKES TO SOLVE GAZETTE PUZZLES

Alvin Sorensen, a Cedar Rapids young man, works for Uncle Sam on the S-29, a submarine stationed near the Panama canal.

He is a subscriber for The Evening Gazette, and lately, since the cross-word puzzles have been started in this paper, has found great interest, with his mates on the "sub," in solving the intricacies of these teasers.

But the world's "meanest man," so Mr Sorensen writes his parents, Mr. and Mrs. Julius F. Sorensen, 1727 Sixth avenue, has been filling in the puzzles before they arrive on the S-29. So when the young man wants to have some fun working a cross-word, he grabs the latest Gazette only to find that all or part of the words have been penciled in the blank squares.

Who does this between the time The Gazette leaves the city, and arrives on the S-29, appears a mystery too deep for even the shrewdest cross-word puzzle fan to penetrate.

Local Man Elected Vice-President Of Iowa Beverage Men

DES MOINES, Jan. 8.—(By Associated Press).—Officers of the Iowa Manufacturers of Carbonated Beverages were re-elected at the concluding session of a three day convention here yesterday.

The executive committee will decide on the next meeting date and the convention city. Fort Dodge, Dubuque, and Des Moines asked for the next session.

The officers include: J. E. Johns of Keokuk, president, William Tehel, Cedar Rapids, vice-president.

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Rubber reducing Corset, our own make.
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Lady Lyke Corset
Our own make.
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Here are modish Coats of high lustre Bolivia! Cut full and well lined. Generously trimmed with fur of good quality. Trimmed with buttons, stitching, and self panels. Sizes 16 to 44.

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Why have a radio set that takes a power plant to operate?

When a 3 Tube Receiver will do the work!

Look at him—just all tired out!

There he is—after toting home a basket full of tubes—expensive tubes, tubes that cost real money and take a power plant to operate.

He's put them in his set, all right. He's thrown on the juice.

More money! First a small fortune for tubes. Then expensive drain on his batteries. Oh, man, but he's tired! Next time he'll know better.

Why should *you* use a flock of tubes? Why? When 3 tubes do the work of 6. 3 tubes! Do you get it? 3 tubes in the new Grimes Official Laboratory Model 3X-P—a real set.

Tune in on this new Inverse Duplex Receiver. Its cost is so small; but, oh boy, how it do work!

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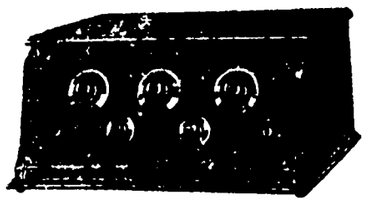

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