FROM THE TOP OF THE WORLD

Far North Installation Goes RCA All the Way

By STANTON D. BENNETT
Chief Engineer, KFAR

AT no spot on earth does radio play a more important role than it does in Alaska. Wire facilities in this extensive territory nearly one-fifth as large as the United States are practically non-existent. The trapper "mushing" his way from cache to trap line returns to his cabin with nothing but a portable battery set for entertainment and news of the outside world. Mining camps isolated except for an occasional airplane dropping food supplies and mail again rely on radio to shorten their long winter evenings.

A Memorial to Alaska

And until October 1st of this year the people of interior Alaska were without broadcast radio reception nearly 10 months of the year. "Outside" stations, the closest nearly 1500 miles away, were received only under favorable conditions. Programs from shortwave international broadcasts are subject to fading and are unreliable, to say the least. It remained for Captain A. E. Lathrop, a generous "sourdough" who has made and spent his money in Alaska for the past 40 years, to bring to the people of interior Alaska their first real broadcast reception.

The station was constructed as a memorial to the people of Alaska, and no expense was spared in making it modern to the last word of engineering.

KFAR's Transmitter Igloo

Just 15 minutes drive west of Fairbanks and 1½ miles north of the University of Alaska is a one-story white all-concrete structure the control room of which houses the RCA 1000-watt type 1G standard broadcast transmitter and associated controls. To the right is a modern five-room completely furnished apartment offering living quarters for the station engineers. To the left is the boiler room, automatic coal stoker, and hot water heating system designed for the severest Alaskan winter. A double garage adequately heated to cope with winter driving conditions occupies the remaining portion of the left wing.

Ice at 40 Feet Below

Construction of the station was begun in early June of 1939, and with the aiding light of the midnight sun (daylight nearly 22 of the 24 hours) two and three shifts were worked the early part of the summer to complete construction during the relatively short building season. The first problem encountered occurred when well drillers were forced to go 256 feet before striking water. Much of the drilling was through layers of frozen soil and ice 15 to 20 feet thick, as there is little opportunity for thawing 3 or 4 feet below the surface.

Building construction in the north country necessarily takes into consideration the fact that temperatures of 50 and 60 degrees below zero are not the least uncommon during winter months. Precautions are made to take care of frost formations on the inside of 8 inch concrete walls which are further insulated by dead air spaces, celotex, roofing paper, ply board, plaster board, and 1-inch cork.

It might be mentioned that concrete buildings in this section of the country are about as scarce as the mythical "Alaskan ice-worm." The freight charges alone are somewhat over three times the original price of cement.

Twelve thousand nine hundred and eighty three pounds (4 miles) of 6-pair lead cable was suspended beneath a private 2300-volt power line to carry programs and telephone service between studios and transmitter. Again ice and frozen ground were encountered in putting in 5-foot post holes where it required several weeks of labor to install and guy poles across swampy areas.

300-Foot Shunt-Fed Vertical Is the Final Word

The choice of a grounded tower was necessitated by the rather severe ice formations which would have rendered an insulated radiator less efficient or inoperative without heating devices. A 300-foot Lehigh vertical was the final choice, erected immediately behind the transmitter building and shunt-fed directly from the transmitter at 50 percent of the tower height.

Approximately 11½ miles of No. 12 copper radials were then plowed 12 to 18 inches underground every three degrees from the base of the antenna. The radials ranged in length from ¼ to ⅜ wave.

Dual Diversity Reception

News of the first importance to the average Alaskan, some of whom see a daily newspaper less than once a month in the many remote sections! and news has turned out to be one of KFAR's primary services with 5 news periods scheduled throughout the day. A problem not occurring to the average station in the states with telephone, telegraph, and teletypewriters hourly rolling off volumes of news, is the obtaining of sufficient material for such broadcasts.

Reception of short-wave press schedules from New York and San Francisco has proved to be the only satisfactory solution. To cope with the unusual and somewhat erratic receiving conditions, two directional rhombic beam antennas were installed to be used with dual diversity receiving methods. Special efforts were made during building construction to bond all metal objects, shield the control room with cop-

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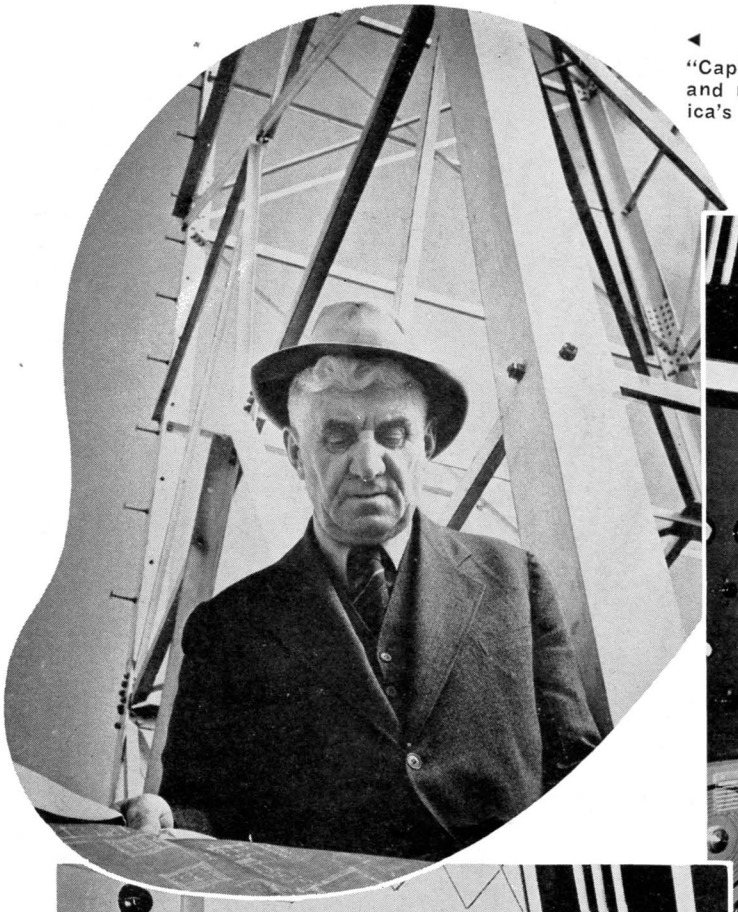
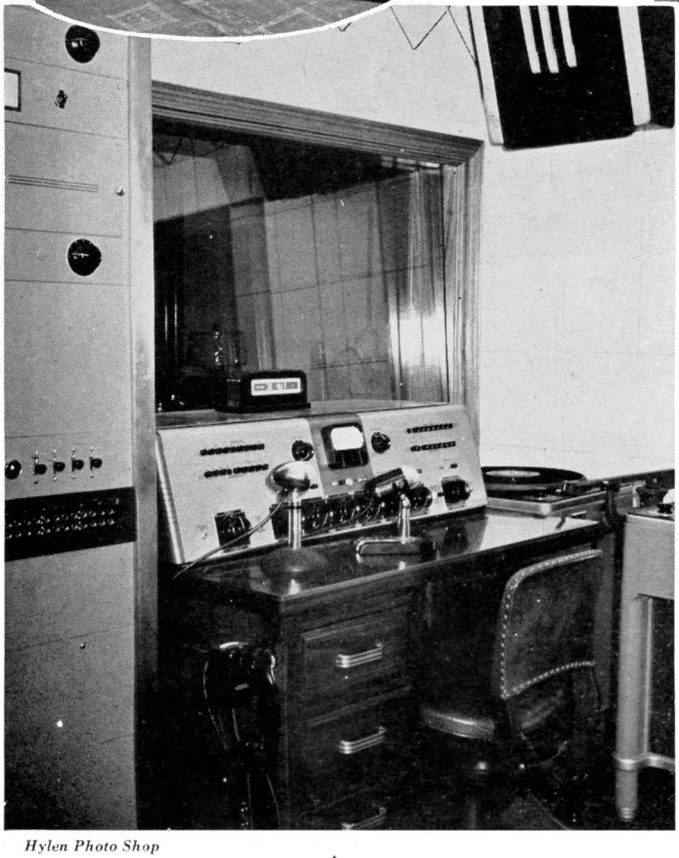
KFAR STAKES CLAIM TO CENTR

"Top-of-the-World" St



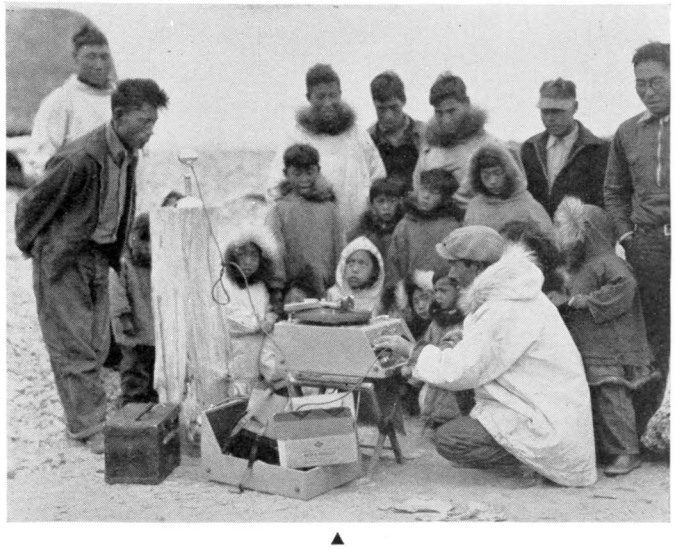
"Cap" A. E. Lathrop looks over plans for the latest and most ambitious enterprise of his career—America's farthest north broadcasting station.

A portion of KFAR's transmitter control. Chief Engr. Stan Bennett at the console. Door to the right gives quick accessibility to RCA 1-G transmitter.



Hylen Photo Shop

KFAR Studio control room layout. Studio "A" front and center and studio "B" to the right.

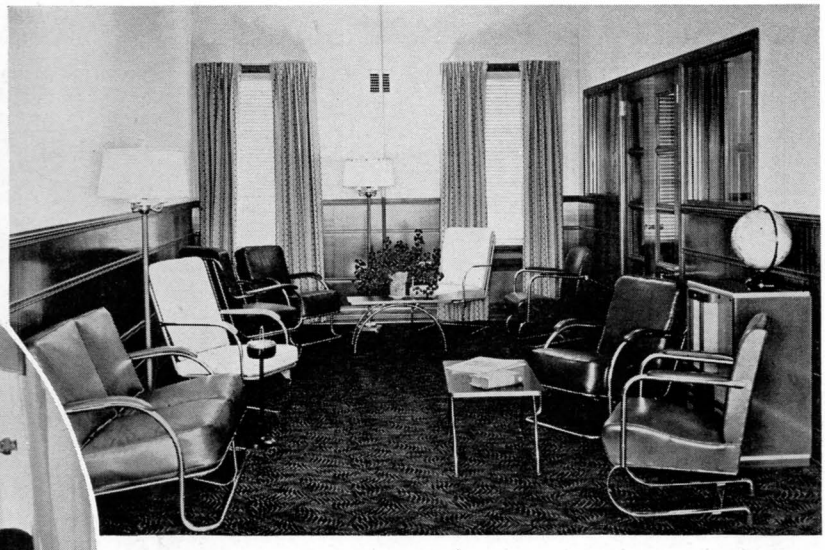


Somewhere in Alaska groups like this are becoming radio conscious.

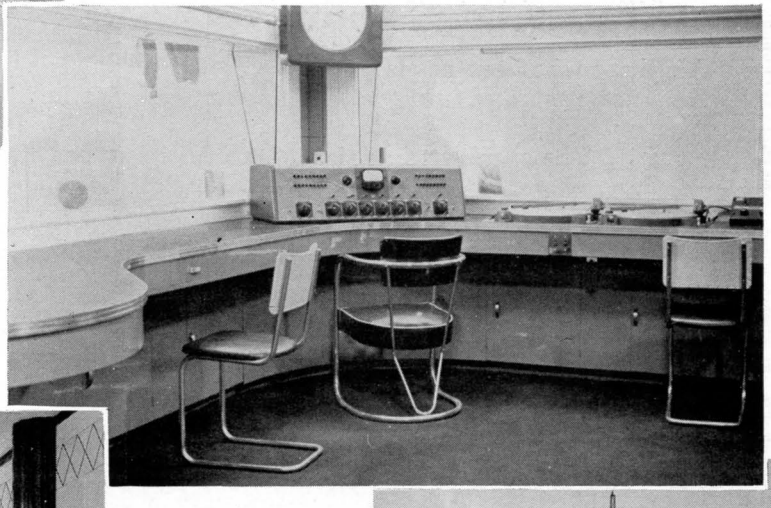
ALASKA RADIO LISTENERS

Tops in Equipment

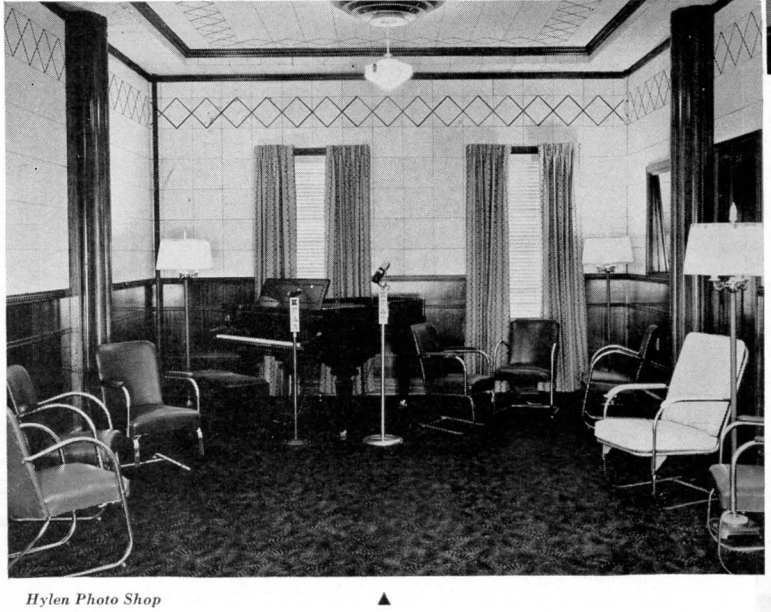
Chief Engr. Stan Bennett takes the ice off the KFAR lead-in during some 35 degrees below zero weather.



The KFAR Reception Room.



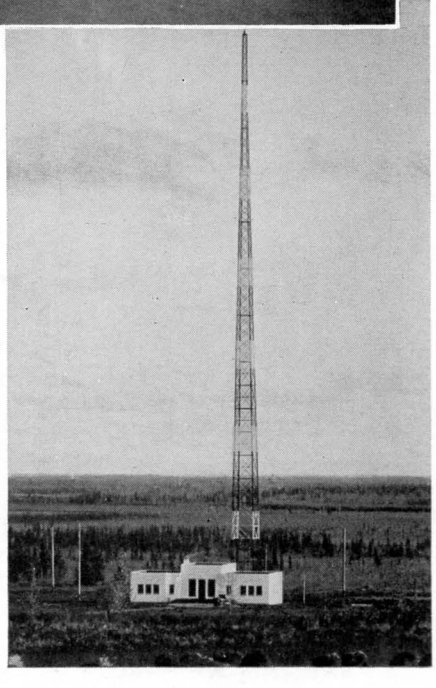
Corner of the control room showing RCA 76-B Consolette.



Hylen Photo Shop

The RCA-77C Mikes in Studio "A"—KFAR, Fairbanks Alaska.

KFAR transmitter house. Location — 6 miles northeast of Fairbanks and 1½ miles north of the University of Alaska.



TOP OF THE WORLD

(Continued from Page 3)

per screens, and bring telephone and power lines underground to insure the maximum efficiency in short-wave reception.

Proposed Short-Wave Chain Connection

KFAR's only hope for a network affiliation at present is also by short-wave. Diversity reception arrangements with tuned vertical and directive antenna have been installed in contemplation of rebroadcasting of short-wave network programs (now pending FCC approval).

Studios in Downtown Fairbanks

Captain Lathrop, a pioneer contractor, banker, canneryman, and theatre, newspaper and mine owner in Alaska, has had the vision of a radio station to serve interior Alaska in the back of his mind for several years. Thus in 1937 when the present Lathrop Apartment and Office Building was constructed in down town Fairbanks, the entire 4th floor was reserved for control room, studios and offices of the proposed station.

This past summer saw the finishing touches of two completely modern "floating" studios, a suite of offices and master control room all of which are finished in Acoustic Cork with Philippine mahogany trim. The recently developed RCA type 76B mixer occupies its position on the control desk with six channels and full facilities for auditions, remotes, remote cues and talk back at the finger tips. In fact the statement that the 76B has "everything but the kitchen sink" wasn't far wrong.

The new RCA "Tri-Purpose" type 77C microphone has been found to serve an all-round purpose in studio "A" as a non-direction, bi-directional and uni-directional mike as the occasion arises. The remaining 7 microphones for studio and announcing purposes are the RCA pressure type 88A's.

No Spares at the Corner Store

"Reliable service" was the keyword to construction and design of the installation on every point economically feasible where the nearest spare part is 2000 to 5000 miles away and a good 2 weeks by express or 5 to 7 days by airmail. Thus, duplicate controls have been installed at both transmitter and studio, the program normally originating at the studio and passing through one of the transmitter console mixing channels into a 96A limiter amplifier which drives the low level stages of the RCA 1G audio section. The arrangement allows full control of the programs from either studio or transmitter and permits use of any of four RCA 70B transcription tables at either location.

As usual the carpenters and building contractors hit the last nail a short ten days before the scheduled station opening. However the equipment tuned up with surprisingly few "bugs" and everything was in order after a week's testing for the grand opening and public debut of KFAR to the people of Alaska on the scheduled date of October 1st, 1939.

Thanks go to Jim Wallace, Seattle consulting engineer (KVI) for assistance with the final tune-ups and much of the preliminary design. Installation was made by Chief Engineer Stan Bennett and ably assisted during the latter days of construction by assistant operator August Hiebert, formerly of KBND.

Programs Built for the North

KFAR's program service during its first 60 days of operation already has proved of inestimable value.

Airplane flight schedules to remote points throughout the territory are broadcast twice daily in many cases bring to a people who fly on the average 17 times as much as "outsiders" their only word of often delayed airmail, transport and supply ships.

Emergency messages to isolated communities without other means of communications are not in the least uncommon. Only recently a message was broadcast to a remote mining camp regarding a medicine prescription which was to be dropped from an airplane the following week. The week previous an effective "blind broadcast" to Nome calling for an emergency airplane pickup from a mining camp perhaps saved the life of an appendicitis victim. It is in appreciation of these services as well as a full schedule of well rounded entertainment that KFAR has received letters and radiograms from Alaskan villages ranging from Point Barrow to Juneau expressing their gratitude for the programs of America's farthest north broadcasting station.

DANA PRATT WILL JOIN CENTRAL DISTRICT

Dana Pratt was born near Topeka, Kansas, in 1912. His five years of college were divided between Kansas University, where he received his B.S. in E.E., and Washburn College where he received his B.M. in piano, both in 1934. During the last year at Washburn College and until 1935 he was employed on the operating staff at Radio Station WIBW.

From 1935 to 1936 he worked with government and commercial transmitters in the RCA Test Department at Camden. Since 1936 he has been with the Broadcast Transmitter group in the Installation and Service Department. Radio, in addition to being a business, has also been a hobby with Dana and his amateur station calls have been W9BGL and W3FWM.

During the past month he has joined transmitter sales and, in the near future, will be stationed in the Central District with Mr. A. R. Hopkins.