

A careful survey of the technical problems involved was made by Dr. T. S. McCaleb of Harvard University, Director of Communications of the Expedition and Mr. E. K. Cohan, Technical Director of the Columbia Broadcasting System, and so great was their faith in the plan that the Columbia Broadcasting System actually sold the proposed broadcasts to a prominent United States advertiser, so that the broadcasts from Little America will not only be heard by amateurs and short-wave listeners but by the vast radio broadcast audience as well, over a nation-wide C.B.S. network.

At first glance one does not realize the tremendous technical difficulties which have to be overcome in order to carry out a feat of this kind. Amateurs are accustomed to talking between continents with relatively low power and occasionally with voice, but a commercial service is an entirely different problem.

First of all, is the limitation imposed by the source of power available. Consideration of cost, fuel consumption and weight very definitely limit the size of the transmitter which could be used. The commercial transoceanic radio telephone circuits use transmitters of 40 or 50 kw. output in order to maintain consistent communication. The Expedition found that the job would have to be done with a 1 kw. transmitter.

Another problem was the erection of a suitable antenna aboard the ship. The commercial circuits use directive antennas covering acres of ground in order to concentrate as much of the radiated power as possible on the receiving station. On the other hand, the not-too-efficient ship's antenna on the "Jacob Ruppert" has to be used until the Expedition reaches Little America.

Most important of all are the varying transmission conditions which affect short waves. Magnetic storms occasionally interrupt commercial circuits for days at a time. No special dispensation of Providence could be counted upon to insure perfect transmission conditions whenever the hour arrived for a scheduled broadcast from the Byrd Expedition.


But, with these things firmly in mind the engineers of the Byrd Expedition and the Columbia Broadcast System went ahead with their plans and at the time this account is printed two broadcasts have already been made. The first, on November 11, was transmitted from a position near Easter Island, off the coast of Chili. The "Jacob Ruppert" was in a heavy sea and the speakers and performers had difficulty in keeping the proper spacing from the microphone because of the heavy rolling of the ship. The program was picked up in New York and placed on the network at the appointed hour. The CBS engineers at New York and the operators aboard the ship had been carrying out daily tests for the previous two weeks and the broadcast

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Postal Telegraph

THE INTERNATIONAL SYSTEM

Commercial
Cables



All America
Cables

Mackay Radio

The following Telegram, Cablegrams, Radiograms and Radiotelegrams may be sent on the day or at the address:

DL	Day Letter
NL	Night Letter
NM	Night Message
LCG	Express Cable
NLT	Night Cable Letter
WLT	Week End Cable Letter
	RADIOGRAM

Form 18

C7 51 EXPED RADIO=

SS JACOB RUPPERT VIA MACKAY RADIO SAYVILLE NY 27 NFT

MR ARTHUR A COLLINS=

CEDARRAPIDS IOWA=

YOUR TWENTY B TRANSMITTER HAS BEEN OPERATING EXCELLENTLY FOR OUR BROADCASTS STOP AT OUR PRESENT LOCATION 6000 MILES FROM NEWYORK WITH GOOD ATMOSPHERIC CONDITIONS SIGNALS ARE RECEIVED WELL IN NEWYORK AND SANFRANCISCO STOP THE PERFORMANCE OF THE TRANSMITTER HAS LEFT LITTLE TO BE DESIRED=

R E BYRD.

had been rehearsed several times with excellent reception. But, of course, everyone was nervous and excited because the thing had never been done before and no one knew just how satisfactory the reception would be. It so happened that conditions were miserable on that evening, but, nevertheless the program came through understandably although somewhat distorted by fading and back-ground noise. Astonished broadcast listeners got a real thrill out of hearing the Flagship's whistle, an introduction of the various members of the Expedition, the barking of the 150 huskies aboard the ship and an announcement by Rear Admiral Richard E. Byrd, himself.

After calling at Easter Island the Expedition sailed for New Zealand, and on November 25 at 9:00 p.m. CST. the second program was put in at the scheduled time from a point in the South Pacific, over 6,000 miles from New York City where it was received. Conditions were a little more favorable this time, and a greater degree of intelligibility was obtained. The practicality of the thing has now definitely been proved and the technical staff has settled down to a routine of transmitting the weekly broadcasts back to an eager public. Sometimes the reception will be better than others, but the programs will always pack a thrill.

The Collins Radio Company feels very proud of the fact that its equipment was selected as being the best suited for this tremendous communication undertaking where highest possible performance and absolute reliability of the apparatus are of vital importance. A standard Collins type 20B Transmitter, operating at 1,000 watts output, is the basic unit used aboard the "Jacob Ruppert" for these broadcasts. In addition two Collins 150B transmitters are being used for communication between the different camps of the Expedition. The

builders of the equipment also feel that the technical staff of the Expedition, the Columbia Broadcasting System and RCA Communications (who will handle the relay circuits from Buenos Aires) are to be highly complimented on the skill and facility with which they are performing this exacting task.

When the base is set up at Little America, these transmitters will be connected to a Bruce-type directional antenna trained on Buenos Aires and New York. The greater radiation efficiency of the directional antenna will increase the effective power of the 20B to several kilowatts. In addition to handling all of the important traffic between the Expedition and civilization the 20B will send back the weekly broadcasts for retransmission over the C. B. S. network during the entire period of the Expedition's stay in Little America. Amateurs will hear KJTY, the call of the "Ruppert," and KFZ, which is the call to be used in Little America, on the following frequencies:

3105	kcs.
4140	"
5520	"
6210	"
8280	"
11040	"
12420	"
16560	"
22080	"

Conventional Federal code transmitters are also installed aboard the "Bear of Oakland" and the "Jacob Ruppert." They are used for communication with other vessels and shore stations and also to contact amateurs when time permits. The bulk of the traffic will be sent over the Mackay Radio System but amateur stations throughout the world will play an important part in the communications network set-up to serve the Expedition.