

THE COLUMBIA UNIVERSITY AMATEUR RADIO CLUB

ANNUAL REPORT AND BUDGET REQUEST

Report for 1970-71

Request for 1971-72

Att:

Donald R. Klein

Assistant Dean for Student Affairs

Communication, according to Marshall McLuhan and many others is constantly reshaping our society. Obviously.?

"Electric circuitry has overthrown the regime of time and space and pours upon us instantly and continuously the concerns of all other men. It has reconstituted dialogue on a global scale."

Every individual can no longer ignore his neighbors. Indeed technology has brought out the desire to know neighbors even more.

"Our new environment compels commitment and participation. We have become irrevocably involved with, and responsible for, each other."

Scientists, educators, politicians, and students reach out, seek information and understanding through group encounters and through personal immediate two-way contact.

A private radio transmitter has been a part of an individual's attempt to communicate for over 50 years. But that is a short time.

Today there are over half a million of these private transmitters around the globe. No country is without at least one. It is not communication for its own sake, but it is rather a medium in which to exchange ideas, thoughts, feelings, beliefs, instantly.

"All media are extensions of some human faculty - psychic or physical."

Columbia has a small private radio transmitter which has been used by many members of the Columbia community. It is a regular occurrence to find a student speaking to other members of universities in the United States and around the world. Conversations between several members of the W2AEE radio club and members of the radio club of the Moscow Technological Institute (call sign UA3BWM) have been regular bi-weekly occurrences for a number of months.

"They're kids with the same kind of problems we have - parents, heavy schoolwork, long hair," remarked one new member who had never heard about what amateur radio was really all about.

It's easier to contact anyone on a radio set than it is with a telephone. You just turn on the equipment, point your antenna to Europe or Asia or anywhere else and call "CQ." If someone hears you he may answer and before long many of the things you find you have in common begin to unite you as close friends, never shy or afraid to exchange ideas about your society or yourself.

Many students at Columbia seek to broaden their contacts and experiences partly through amateur radio communication. In the 1970-71 school year the radio club enjoyed the enthusiasm of a large and interested membership.

Sixteen full members with ham licenses and nine associate members who sought licenses used the station quite actively. Slightly over half the members were from the school of engineering but every division of the university, both graduate and undergrad

was represented on the membership lists. Even two foreign students with amateur operator licenses from their own countries were permitted to use the station to contact relatives back home through reciprocal operating courtesies granted by the FCC. Several local high school students who sought to become hams were welcomed and with a little coaching from licensed club members soon passed the exams and got their own licenses. With this full contingent of licensed members the radio club saw the culmination of many projects.

New antennas were purchased and they will be assembled and mounted on the roof over this spring and summer. When completed, the station will have full antenna systems for all the five high frequency bands and two VHF bands. In addition a complete antenna az-el rotator assembly was constructed for the two VHF antennas so that they can be pointed to within 1 degree accuracy at any point in the sky.

Since a new tower would have cost more than was in our budget, we attempted to make do with patching up the old tower system. Another fresh coat of rusoleum was applied to the entire large tower and rusted bearings, wheels, cranks, and bolts were removed and new ones were bought or machined downstairs in the shops. The large antenna rotator was removed, checked, and oiled as part of the maintainance procedure.

A new VHF transverter was bought from Heathkit at a 50% savings and constructed to give the station complete SSB, CW, RTTY, and SSTV capability on the 2 meter amateur band (144-148MHz).

Other equipment was serviced and new needed parts were bought or machined. The radioteletype (RTTY) terminal unit was repaired and a new converter was constructed so that amateur, government, and foreign teletype could be decoded. The teletype equipment is now completely functional.

Several phone patches were completed to Israel, Brazil, and Peru for several Columbia students in spite of the fact that the new antennas had not been installed (due to winter weather). But many requests for this free service had to be denied because of the obvious equipment problems.

A complete system for the generation and reception of both slow and fast scan television was constructed by one of the members and the radio club has now been given full capability to exchange video information with both local amateurs and foreign hams. The fast scan TV looks like home television and all the transmitting and receiving equipment has been constructed. As soon as the VHF antennas are raised the club will be able to exchange TV with about 30 other stations throughout New York New Jersey, and Connecticut. The slow scanning video system generates one picture every 8 seconds. Its advantage over fast scan is its very narrow bandwidth, enabling it to be transmitted over voice channels. Since the FCC authorized SSTV transmissions about 2 years ago, many amateurs all over the world have become fascinated by the thought of sending pictures around the world. There are now about 90 stations around the world with slow scan capability. Since Columbia's radio club had completed this project

even with a limited antenna system, high quality video was exchanged with stations in California, Texas, Washington, Australia, Italy, and Sweden. Pictures were also sent to the club station of our friends in Moscow. The USSR has not yet authorized SSTV transmissions by their stations, but several have constructed receiving apparatus.

The Third region director of Navy MARS (Military Affiliate Radio System) found out about the radio club's RFTY and SSTV capability and invited the club to become a member of this traffic and phone patch system. Through this authorization, W2AEE would have been permitted to handle military traffic outside amateur frequencies. The military would grant the station authority to operate on certain military and commercial channels to handle traffic for servicemen overseas. We would be granted permission to exchange video information with KC4USV in McMurdo sound, Antarctica. At present there are only 12 amateur stations in the United States with such privileges.

Several members have been interested in experimenting with the sixth OSCAR (Orbital Satellite Carrying Amateur Radio) satellite which will be launched in late 1971 or early 1972. This will be the first linear repeater and telemetry satellite launched by hams and is presently being designed by amateurs in Australia, Germany, and the U.S. When completed and launched, it will take a signal transmitted to it on a frequency of approximately 432.1 MHz and re-transmit it to earth on a frequency of 146.1 MHz. Voice, code, teletype, and SSTV will be all acceptable modes.

Approximately 140 countries will participate in this experiment and the Columbia radio club hopes to ably represent the United States. Arrangements are being made with several stations in California to attempt the first two-way video (slow scan) contact via satellite for amateur stations. Already the complete antenna system has been designed and constructed. The 2 meter transverter, varactor tripler, and power amplifier have been constructed. Only a frequency divider, 2 meter preamplifier, and transmission line system remain to be built.

Much has been accomplished last year. The technical achievements have been many. But the contributions that can be made to the Columbia community via phone patching and traffic handling, and the services that can be rendered to men and women in the Navy via MARS require not only time on the part of the radio club's members but also a high quality station with good equipment.

In last year's budget request, the club submitted a list of equipment considered quite necessary to enable the Columbia station to have the capability to handle high volume high quality traffic to all parts of the world in all modes - voice, code, RTTY, and SSTV. What is required is good solid high power equipment with a first rate antenna system. The antenna situation has been remedied with last year's budget allocation. We expect these antennas to serve for at least five years. What is needed now is the balance of those funds that were requested so that the problems resulting from over ten years of neglect can be remedied.

A separate page at the end of this report details the equip-

ment needed; present resale value of existing equipment; and all other financial details. A full report of the club's financial situation has been delivered to the membership and it has become clear that only if the members contribute more will the station become fully operational next year. So in addition to the yearly membership dues of \$5 the members voted to contribute an additional \$5 - \$10 each. This in itself should speak for the commitment each member has made in working towards all the ends detailed above.

We sincerely hope that the administration will see the educational and practical benefits the Columbia radio club can give not only to its members but also to all those who desire free and immediate communication with the rest of the earth.

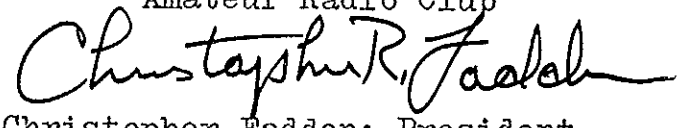
"Now all the world's a stage."

Thank you for the opportunity to submit this request.

Sincerely,

The Columbia University

Amateur Radio Club



Christopher Fadden; President

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Columbia University Amateur Radio Club

Since the antenna problem has been remedied, no funds are required for its maintainance. However the present equipment is outdated and unable to handle the present requirements. It is unadaptable to the new modes of RTTY and SSTV and cannot function well under the heavy operating load everyday continuous traffic schedules would place upon it. The television experiments as well as the OSCAR VI equipment are not included in any budget allowance. They are private investments on the part of individuals in the club.

INCOME -

Resale of SB-101 transceiver and power supply	- \$300.00
Sale of old Drake 2A receiver and Q-multiplier	- \$145.00
Dues and voluntary membership contributions	- \$150.00
	\$595.00

The following list of equipment is essential to full operational capability on all modes and all necessary frequencies.

NEW EQUIPMENT -

Drake 4-line (receiver, transmitter, power supply)	- \$928.00
Heath SB-220 2 kilowatt amplifier	- \$349.95
	\$1277.95

Total amount needed - \$677.95.

The above prices are for brand new equipment. We realize that the chances of our getting this amount are quite slim. However a used linear amplifier can be purchased for about \$300. We ~~will~~

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are aware of the tight money situation and feel that we can make end;meet and do not request any funds for "operating expenses". If the club, for this one year could be given \$600.00, then all major equipment problems could be completely solved. The new equipment would last for at least 5-10 years and immediate high quality traffic service could be initiated. Please believe and support us this one time.

Thus our budget request stands, after all possible shortcuts and maximum member contributions, at \$600.00.