

Capt. Frank Casserly of the Marines has recently returned from England, and spent a few days in Pasadena during June. He is stationed on the east coast.

Frank Skalecky and Bill Menard, '42, joined together in the U.S.N.R., attended the same intelligence school at Washington, and since that time have spent their "leisure" on a south sea island.

William Schubert, a Lieutenant (j.g.) has been attending the U.S. Naval Engineering Experiment Station at Annapolis.

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Harry (Sam) Madley and Miss Lois Norman of San Marino, were married on April 17, and are now in the east where Sam is an Ensign with the U.S.N.R. at Fort Schuyler, N.Y.

Al Landau is an instructor in light anti-aircraft fire control at the Aberdeen Proving Grounds. He holds the rank of Technical Corporal.

Dave Berman is the father of a son, Jerald Dennis, born February 12. Dave is with the Goodyear Tire and Rubber Co. in Los Angeles.

Gordon K. Woods and Miss Leona Jakobsen were married on April 25 at Palo Alto, and they are now living in Berkeley. Gordon is employed by the Kaiser Co. in Richmond.

Chang-nee Tsu and Miss Doris Chao were married in Pasadena on June 5. Both were born in Shanghai and received their early schooling in China, but they met in Pasadena. Mr. Tsu is an aerodynamicist with an aircraft company.

Kenneth Schureman, Ensign (CEC) U.S.N.R., was put on active duty immediately after his graduation from Tech. After a short training at Norfolk, Virginia, he was sent to the Navy Yard Annex at Bayonne where he worked for the Offices in Charge of Construction of the Supply Depot and Dry Dock. He is now attached to the Public Works Department.

Eric H. Schauer is a design engineer for Central Metal Products, Los Angeles.

Warren Gillette has been attending the Midshipmen Training School in Manhattan.

Paul Allen is now located at the Office of Inspector of Naval Material for the Los Angeles District. He was married on February 7 to Miss Nancy Momson of Fresno.

Frank W. Wood was graduated on May 31 with the Maintenance Engineers Class from the Technical School, Army Air Forces Training Command at Yale University, and now holds the rank of Lieutenant.

LETTERS TO THE EDITOR

Donald S. Clark, Editor
Alumni Review
California Institute of Technology
Pasadena, California

Dear Don:

The article "Commercial Broadcasting" by Beverly Fredendall in the March issue of the Alumni Review contains implications of wire line frequency range

limitations which do not exist on lines leased from the Bell System by the broadcasting companies.

The chart on page 7 shows "Good broadcast studio and transmitter," 16 to 16,000 cycles; "Wire circuit to local transmitter," 16 to 8200 cycles; and "Transcontinental wire circuit," 80 to 5200 cycles. This incorrectly implies that limitations imposed by wire circuits prevent reception by broadcast listeners of the full frequency range of which broadcast equipment is capable. This implication is repeated in the text on page 19.

As a matter of fact nation-wide wire circuits covering the range 50 to 8000 cycles are available on order and, for limited distances, channels capable of transmitting frequencies from 20 to 20,000 cycles are available. Furthermore, wire lines with higher frequency limits have been used on several occasions, as for example those used for transmitting television frequencies up to about 3 megacycles. In short, wire circuits are available or in normal times would be made available to cover any frequency range ordered by the broadcasting companies.

Although some readers may not realize it, I am sure that Bev does not intend to imply that technical considerations limit the frequency band width which wire lines transmit. On page 19, following the statements of limitation of frequencies transmitted by wire, Bev points out that the upper frequency limit is restricted by several other factors, chiefly by the need to prevent inter-channel interference, and by radio receiver circuits and loudspeakers. To the careful reader it will be obvious that these other limitations make it largely unavailing to transmit wide frequency bands on many transcontinental circuits. However, the casual reader or the person looking at the chart but not reading the text very likely would be given the incorrect impression that wire line transmission prevents full enjoyment of broadcast transmission. Actually wire lines are available and in use whose capabilities exceed that of the "Good broadcast plant" referred to by Bev on page 19.

I am sure I am expressing the thoughts of all members of the Alumni Association in saying that we appreciate Bev's providing this article and I am confident that Bev will welcome the thoughts expressed here as endeavoring to remove any misapprehensions which may have resulted from lack of emphasis on the actual limitations upon transmitted frequency band width.

Yours very truly,

H. K. Farrar,
Transmission Engineering Dept.,
So. Calif. Tel. Co.

Donald S. Clark
Editor, Alumni Review
California Institute of Technology
Pasadena, California

Dear Don:

I am in substantial agreement with the basic thought expressed by H. K. Farrar of the Southern California Telephone Company regarding the article "Commercial Broadcasting." In this article it was not my intention to imply inability of the telephone companies to provide wire circuits having a greater frequency range than that in use today and correctly pictured on the published chart, but rather to give an explanation of current practice as used in network operation at the present time in terms everyone could understand.

In a similar manner the picturization of the limited frequency range of the present day radio sets as shown in the same chart was not an indication of the inability of engineers to design radios of greater frequency range. Proof of this ability is evidenced by present day television receivers. It was an attempt, however, to show the average radio set as it exists today.

Perhaps more emphasis should have been placed upon the basic reason for the limited frequency range of present day radio sets and in turn upon the economic use of a comparable frequency range wire circuit. The primary reason for the limited high frequency range is due to the crowded condition of the present broadcast band where adjacent channels are only 10,000 cycles apart. Being only 10,000 cycles apart means that under certain conditions, usually associated with long distance reception, when the listener attempts to tune in a "desired" station and finds that on an adjacent channel there is an "undesired" station, that the program of one crosses over into and causes interference with the other. For example, a 4,000 cycle tone on one channel would be received as a (10,000—4,000) 6,000 cycle tone on the other. Similarly a 7,000 cycle tone on one channel would become (10,000—7,000) 3,000 cycles on the other. This form of inter-channel interference results in the inversion of sound, with respect to 10,000 cycles (the channel separation), as the program crosses from one channel to an adjacent one. Since this inverted sound is unintelligible it is popularly called "monkey chatter."

The entire subject is too technical for full treatment here, but in short, inter-channel interference is reduced by limiting the upper frequency range of radios used for long distance reception applying under present broadcast conditions.

Very truly yours,
Beverly F. Fredendall