

THE RISING TIDE OF FM

FM, in the midst of its boom, still rises rapidly.

By HUGO GERNSBACK

IN the middle of April, when this was written, there were in actual operation in the U.S. 463 FM broadcasting stations. In addition the Federal Communications Commission has authorized 564 more FM stations which are as yet not on the air. Besides the above, 88 more applications are pending. As soon as the latter are in operation, we will therefore have 1,115 FM broadcast stations in the U. S. This does not by any means represent the saturation point. Conceivably between 3,000 and 4,000 FM stations can operate successfully in continental U.S. without undue overcrowding.

Why so many stations? The reason of course is that the effective transmitting radius of an FM station is its optical horizon—in flat country from 25 to 35 miles, in hilly or mountainous regions from 35 to 100 miles. The topography in the U.S. being preponderantly level, it follows that over 85% of the FM stations will have an effective transmitting range of only an average of 35 miles radius. Hence many more transmitters are needed to cover the entire country.

The present trend indicates that in a foreseeable time the U.S. will undoubtedly be converted from AM to FM. The reason is simple: once a radio set buyer has listened to the much clearer, practically noiseless and staticless radio reception of an FM receiver, he will shy away from AM. This is indeed what is now happening all over the U.S. It also explains the present FM boom, both in transmitters being erected and receivers sold.

Here are the latest FM receiver statistics: There are now in use (up to April 30) 2,022,547 FM receivers, which figure includes FM tuners (converters) and AM-FM sets. Radio manufacturers are producing now about 148,000 FM units monthly. These figures are compiled from RMA and independent sources.

At one time it was thought that FM would be a completely independent adjunct to radio broadcasting in America. It was felt then that every FM station would disseminate its own programs, or that there would be a country-wide high-fidelity FM network which would actively compete with AM stations and AM networks. This did not come about, although there are of course many independent FM stations which originate their own programs—mostly phonograph music at pres-

ent—and one or two high-fidelity regional FM networks.

Instead of strictly independent FM programs, the present trend is unmistakably toward a solid duplication of those broadcast by the AM stations. More and more do AM broadcast station owners invest in FM transmitters. And as soon as they do so they now invariably duplicate the programs which are broadcast by their AM transmitters over their FM transmitters as well, even though this means sacrificing high-fidelity transmission to ordinary network standards (100-5,000 cycles).

Moreover, the exigencies of economics will make it necessary for the independent small-town FM transmitters to take the high-grade, sponsored AM network programs originating in New York and Hollywood. This is but a repetition of broadcasting history when early independent small-city AM broadcasters found it necessary to become affiliated with the big radio networks.

The reason for such affiliation is a purely economic factor: no small-center independent FM station can possibly afford to pay for a continuous stream of high-class programs. Besides, the American public has been educated to the big-feature, big-star radio programs. If the FM stations do not broadcast these features, then FM would be doomed to failure. Clearly this will not come about, and the present tendency supports this view.

That the public's listening trend is unmistakably toward FM is clearly shown by the radio receiver manufacturers. There is first of all a huge output of pure FM radios.

Next we have an even higher output (at present) of FM tuners that can be attached to old-style AM receivers to bring in FM programs. Then, we have combination AM receivers with FM, to bring in both types of programs. Finally all the newer and better television sets are also equipped for FM, making reception much more pleasurable.

How long will it be till the entire U.S. broadcasting facilities have been completely converted to FM? From about 8-10 years might be a conservative estimate for 85% to 90% of our transmitters. But from 10% to 15% of them may remain AM for much longer—in fact some of the larger stations may continue to transmit AM indefinitely.

**This Special FM Issue
is Dedicated to
Major
Edwin H. Armstrong
Father of FM**

RADIO-CRAFT is happy and proud to dedicate this special number on FM radio, to Major Edwin H. Armstrong—scientist, radio engineer and inventor extraordinary.

Few radiomen in U.S. history have achieved the towering stature of Armstrong. His unprecedented and epoch-making basic discoveries: the super-heterodyne, superregeneration, and frequency modulation will forever make him one of Radio's Great Immortals.

Armstrong, who is professor of electrical engineering at Columbia University, is now in the prime of his eventful and productive life. Let us wish him a long and healthful future, in the full knowledge that he will bestow more of his priceless gifts on radio and all of us.