The Dope From Hope is published occasionally, when something new comes from our Lab or when for other reasons something needs saying. In 1961 there were 13 releases, in 1962 only one.

The past year has been one of digging for facts, and hardware is beginning to evolve. The CORNWALL was one of the targets and 2 areas were attacked. First, because some people wanted to use these speakers embedded, the back duct-port was a disadvantage. Second, there is room in the box for a larger mid-range horn.

For years the laborious but accurate point-by-point method of making response curves has been employed here. A faster "reconnaissance" method was evolved using photography of the curve displayed on a cathode-ray oscillograph. This lacked the conventionality and ease of interpretation of the curves produced to a standard scale on a level recorder. The usual "high-speed-level-recorder curves" lacked the detail of the point-by-point method, however myopic that may be. But the high-speed-level-recorder technique applied at very low speed has proved to offer all the detail of the point-by-point method at sufficient time saving to warrant very extended, detailed and voluminous studies.

With these facilities for curve-running, but not neglecting distortion, the bass system of the CORNWALL was redesigned to afford front port exhaust. "Tuning the port" -- an expression dear to the hearts of magazine editors and writers -- was one of those elusive things -- how do you tune something to correspond to a diaphragm suspension resonance which varies nearly an octave with variations of amplitude? The simple port was ruled out for distortion reasons; the old back port was re-proportioned and then varied until distortion was minimized. This resulted in a 5 db improvement in bass compared to a closed box (6 db is the theoretical limit) and the distortion was less in the operating range than for a closed box. The new port provides a very slight bass improvement over the old, -- probably less than audible -- and affords convenience for some specialized applications, ie built-ins.
Twenty-three years of experimentation with mid-range horns bore fruit with a series of studies on baffled horns. Basic to the idea is that a horn radiating into free space (4 $\pi$ steradians) requires some specific mouth size; if it radiates into half that radiation angle or 2 $\pi$ steradians, the mouth need be only half as large. Thus for a given available length the taper rate may be lower. There was a series of questions relative to polar response (spatial distribution), upper end response limits, etc. The end result was a lower crossover of 600 cps compared to the previous 1000. The upper crossover remains at 5000 but with a smoother overlap. Polar response remains optimum; distortion remains low in spite of the increased operating range.

Listening tests have been gratifying. The new CORNWALL sounds more like the KLIPSCHORN than did the original CORNWALL. All visitors who compared the old with the new liked the new.

The new CORNWALL (designated CORNWALL II on label) is available now. This unit shows a considerable improvement in sound and utility. We are proud to say that there will be no price increase in spite of the larger, more costly K-600 mid-range horn.

Old CORNWALLS may be converted in the field to utilize the new mid-range horn and crossover-balancing network, but port relocation is not practical. Parts required are K-600 horn at $25 and network exchange at $15.

One should be reminded that all speakers are corner speakers, even though the CORNWALL is adaptable for a-gainst-the-wall use. Good stereo demands flanking speakers in corners and with toe-in (see "The Eight Cardinal Points in Loudspeakers for Sound Reproduction" - The Institute of Radio Engineers. Professional Group on Audio, Vol. AU-9, No.6, November-December 1961). If the CORNWALLS are used as primary speakers they should be placed diagonally in the corner. Such placement flattens the bass response to lower frequency limits as well as improving the accuracy of stereo localization.

Paul W. Klipsch

KLIPSCH and ASSOCIATES, Inc.
Hope, Arkansas