

Abstracts of Technical Articles from Bell System Sources

*Modern Theater Loud Speakers and their Development.*¹ C. FLANNAGAN, R. WOLF, and W. C. JONES. Although many of the basic ideas involved in the operation of present-day loud speakers were conceived during the early stages of the development of the telephone, it was not until the advent of the vacuum tube amplifier that these principles were applied to the design of structures capable of delivering sufficient acoustical power to be audible throughout a room or auditorium. Having reached this stage, however, the developments that culminated in the sound reproducing systems employed with present-day sound pictures came in rapid succession. These developments have embraced all phases of loud speaker design, with the result that systems are now available that convert from 25 to 50 per cent of the electrical input into acoustical output, and maintain conversion efficiencies of this order of magnitude over a frequency range of 50 to 10,000 cps. These systems are so designed as to be capable of reproducing the recorded sound at intensities that not only greatly enhance the dramatic effect of the presentation in the theater, but also open entirely new fields in recording. All these improvements have been attained with a reduction in distortion and improved fidelity of the reproduced sound. The directional properties of the loud speakers also have been markedly improved, with the result that the better quality of reproduction achieved is available throughout the entire seating area and the undesirable beam effects previously experienced have been eliminated.

*Power System Faults to Ground—Part I: Characteristics.*² C. L. GILKESON, P. A. JEANNE and J. C. DAVENPORT, JR. The results of an extensive oscillographic study of power-system faults to ground are presented herewith. While this study was made primarily to obtain data useful in inductive coordination problems, the results are believed to be of general interest as well. They provide data on such items as frequency of occurrence of ground-current disturbances, their monthly distribution, duration, cause, method of clearance, and wave-trace characteristics. Data on fault resistance are given in part II, a companion paper.

¹ *Jour. S. M. P. E.*, March 1937.

² *Elec. Engg.*, April 1937.

*Direct Recording and Reproducing Materials for Disk Recording.*³
A. C. KELLER. Recently materials for direct recording and reproducing work have been improved so that they are now suitable for many uses. These materials, as they are available on the market, are classified chemically into five groups and measurements are given of frequency characteristic, surface noise, life, distortion, etc. These data have been taken with both lateral and vertical recording.

³ *Jour. Acous. Soc. Amer.*, April 1937.