

The Recording and Reproduction of Sound



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PUBLISHER'S NOTE

The demand for, and the acceptance accorded, the first edition of this work has provided the stimulus for the present greatly expanded and revised volume. With more than twice the number of pages, this second edition includes many new and timely chapters, so that the work is in every sense a complete reference to all phases of audio. The text is written at a practical level, yet includes essential technical data in mathematical form to cover the subjects adequately. Prepublication of this new volume has been undertaken as a continued service toward the advancement of knowledge in the audio field both as it applies to commercial application and to use in the home. The text and opinions expressed are those of the author.

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ABOUT THE AUTHOR

The publication of the second edition of *The Recording and Reproduction of Sound* compiles in a single volume the detailed results of many years of exhaustive research and experimentation by the author, Dr. Oliver Read. The immediate acceptance of the first edition encouraged further writing on many new chapters as well as expansion of much of the earlier material. As Editor of RADIO & TELEVISION NEWS and RADIO-ELECTRONIC ENGINEERING, Dr. Read has long been a direct observer of the audio industry, both in the role of a hobbyist as well as professionally.

Author of many articles on recording and reproduction, notably "*The Theory and Practice of Disc Recording*," "*Building Your Own Recording Studios*" and "*A Flexible Record-Reproduce System*," Dr. Read possesses an enthusiasm and interest in the subject which he reflects in the practical treatment he accords Audio in all of its numerous phases. To keep abreast of the field, he maintains a fully equipped laboratory in his home for experimental work on tape, disc and wire recording and reproduction and for the study of home music systems. He witnessed the Atom Bomb tests at Bikini and recorded the events on wire.

Dr. Read is a member of the IRE Professional Group on Audio, The Society of Motion Picture and Television Engineers, Acoustical Society of America, Audio Engineering Society, Chicago Acoustical and Audio Group, British Sound Recording Association, American Institute of Physics and the Armed Forces Communications Association.

He maintains a broad and active interest in all developments in the audio, radio, television and electronic fields, each of which has made its own contribution to the advancement of the art of recording and reproducing Sound.

Preface

A complete reference to the many subjects in the general category of sound recording and reproduction has long been wanting. The need for ready reference on audio in all of its many phases has been repeatedly expressed by the audio engineer, the audiophile, sound technician, student, recordist, PA service technician and others engaged in the recording or reproduction of sound by means of disc, tape, wire or film.

Numerous articles have appeared in technical and non-technical journals covering various aspects of sound and their relation to recording techniques and methods of reproduction. Scattered as these articles are, it becomes a problem of continuous research and reference to hunt through such material, both foreign and domestic, to locate information on specific subjects in so wide a field.

Accordingly, **THE RECORDING AND REPRODUCTION OF SOUND** has been written to cover, in a single volume, all the essential requirements for a complete understanding of all currently employed systems and to include specific data on the components that determine the final result.

In the design of apparatus for the recording or reproduction of sound, the ultimate destination of the transmitted energy impulses is the human ear. The sequence of events (including acoustics) occurring from the time sound leaves its source until it arrives at the human ear, is a fascinating subject, rich with interesting phenomena. Acoustics has its inductance, capacitance, resistance; in fact, practically all the elements found in electrical circuits. It is our purpose to discuss acoustics insofar as it applies to the explanation or use of specific apparatus.

The recording and reproduction of sound is a complex subject embracing many methods and techniques. New developments are increasing practical applications for sound reinforcement, and magnetic recording units have proved their capabilities for use in the studio, in the home and in commerce. Microgroove records are contributing better music at lower cost to the masses. Magnetic pickups of the variable reluctance type have proved their worth and new reproducers offer true fidelity reproduction.

The text of this volume includes an abundance of information for those primarily interested in getting the finest possible reproduction from all forms of recorded media. Complete systems are included and a wide choice of amplifiers is presented so that the reader may make his own selection to suit his own particular requirements. The book emphasizes subjects known to be of greatest interest to those engaged in the recording or reproduction of sound. It has been written at semi-technical or non-technical level, wherever possible, and a practical viewpoint has been taken in presenting the material. Finally, the book contains essential history which serves as a background for a complete understanding of the many methods and techniques employed in recording and reproducing sound.

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