forms and of more general Fourier-Stieltjes transforms (and also of related Laplace, Mellin, Hankel, Watson, · · · , transforms) on the one hand is becoming an almost universal tool for treating various problems arising in the theory of functions of a complex variable, theory of linear operators, harmonic analysis, probabilities, mathematical physics; on the other hand it offers an inexhaustible source of formulas and relations which are interesting, or at least curious, in themselves, irrespective of possible applications. The present monograph, which hardly can be considered as an "introduction," centers its attention mainly in the latter aspect of the theory of Fourier integrals and presents a wealth of interesting material, a considerable portion of which is due to most recent investigations. A partial list of contents follows.

Chapter I (Convergence and summability, pp. 1–49) treats of formal aspects of Fourier, Laplace, and Mellin transforms, and gives fundamental results concerning convergence and summability (Cesàro, Cauchy, Poisson, Weierstrass) of the corresponding integrals. Chapter II (Auxiliary formulae, pp. 50–68) gives a preliminary survey of the Parseval formula, theory of convolution (Faltung) of Fourier transforms, and Poisson summation formula. Chapter III (Transforms of the class L^2, pp. 69–95) is devoted to a treatment of Fourier transforms in L^2 together with some related topics. Results of this chapter are partially extended to transforms in L^p in Chapter IV (Transforms of other L-classes, pp. 96–118). The theory of conjugate trigonometric integrals and the closely related theory of Hilbert transforms is dealt with in Chapter V (Conjugate integrals, Hilbert transforms, pp. 119–151), while the next, Chapter VI (Uniqueness and miscellaneous theorems, pp. 152–176), in addition to the problem of unique representation, treats of some refinements of the Parseval formula and problems of growth of Fourier transforms. Chapter VII (Examples and applications, pp. 177–211) contains a considerable number of special formulas involving Fourier integrals. The theory of "general transforms," which was originated recently by Watson, and the theory of "self-reciprocal" functions with their various generalizations are discussed in Chapter VIII (General transforms, pp. 212–244) and Chapter IX (Self-reciprocal functions, pp. 245–274). Next, Chapter X (Differential and difference equations, pp. 275–302) contains numerous special applications to the theory of difference and differential equations, giving a rigorous exposition of some parts of the theory known under the name of "operational calculus." The last chapter, XI (Integral equations, pp. 303–369), deals with a considerable number of special integral equations. The book closes with a substantial bibliography (pp. 370–387) and a short index.

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Methoden und Probleme der dynamischen Meteorologie. By H. Ertel. (Ergebnisse der Mathematik und Ihrer Grenzgebiete, vol. 5, no. 3.) Berlin, Springer, 1938. 4+122 pp.

The mathematician will perhaps be surprised to learn that the difficulties in the study of the dynamics of our atmosphere are essentially of a mathematical nature. In fact this subject, as well as stellar hydrodynamics, offers a virgin field for the applied mathematician, and it is to be hoped that Ertel's monograph will serve to attract the mathematical skill which meteorology needs.

As can be inferred from the title, Ertel's monograph is not intended to serve as a textbook in meteorology. One important omission is atmospheric turbulence. The problems that are treated have mostly been the subject of Ertel's own researches and here, as in the original papers, the elegance of the treatment may seem a bit luxurious to the practical meteorologist.

A feature which is not found in textbooks is the formulation of the variational