simplified by omitting the condition that it be a *continuous* linear functional on the space of "good functions." This definition is sufficient for the purposes of the book, and it avoids certain technical complications which would only hinder the intended reader. The basic operations on distributions are developed in addition to results concerning the identification of ordinary functions and distributions. No knowledge of the Lebesgue integral is assumed. Much of the theory in this chapter is illustrated with the delta function and its derivatives.

Chapter three is devoted to the study of several particular distributions which occur frequently in practice. There is also a brief account of the distribution interpretation of Hadamard's "finite part" of an improper integral and Cauchy's "principal value." This chapter closes with a short table of the Fourier transforms of the previously studied distributions.

In chapter four, the author employs a reformulation of the Riemann-Lebesgue lemma to obtain a systematic method for obtaining asymptotic estimates of Fourier transforms of functions with a finite number of singularities. The most interesting and instructive examples are to be found in this and the next chapter.

The final chapter is devoted to Fourier series. There are two important and useful theorems in this chapter. First, a necessary and sufficient condition is given for a trigonometrical series to converge to a generalised periodic function. Second, that there exists a unique Fourier series representation of any generalised periodic function which converges to the function, whose coefficients can be determined, and which can be differentiated term by term any number of times. In the final section of this chapter, a method is given for determining the asymptotic behavior of the Fourier coefficients of generalised periodic functions. The main results apply to generalised periodic functions with a finite number of singularities in the period.

MILTON LEES

The mathematics of physics and chemistry. By Henry Margenau and George Moseley Murphy. 2d ed. Princeton, Van Nostrand, 1956. $7.95.

Anyone who has read stories about the South Seas is aware that there is a language called Pidgin English (actually there are several kinds) which seems at first sight to be a clumsy and inept parody of English. It has, as a matter of fact, attained wide currency in some places, and is now recognized as being a genuine language in its own right, although somewhat limited in its vocabulary. Its repulsive aspects (to a user of standard English) are mitigated, if not altogether removed, by this recognition; and it now appears that since Pidgin English serves a useful purpose there is no need to try to replace it by standard English, and indeed little point in attempting to do so.

I have often been irritated, like other professional mathematicians, by the clumsiness and departures from the accepted norm of the mathematics used by physicists and presented in books such as this one. From investigation of this and other books on physics, as well as on the mathematics of physics, I conclude, however, that physicists deal with mathematics of an entirely different kind from that used by mathematicians. In fact, it is not unfair to say that they use pidgin mathematics. They use mathematical reasoning mainly as a crutch, either to convince themselves that they are reasoning correctly in complicated situations or to help themselves remember the sequence of steps in an argument. In either case mathematical rigor is irrelevant, and any kind of plausible argument, however dubious logically, will serve. Since the physicists' conclusions are usually known to be true, and will be discarded if they do not check with experiment, little harm is done. A consequence of the physicists' approach is that there are several kinds of pidgin mathematics, with "theorems" that appear discordant to the outsider. Thus in thermodynamics no multiply-connected regions occur, and the student learns (as in this book) that the integral of an exact differential around a closed path is zero. In hydrodynamics (which is not covered in this book) the situation is different, since multiply-connected regions are common. That pidgin mathematics may lead to mistakes in complicated situations is no reason for deprecating it. Mistakes made by physicists are quickly recognized by their inconsistency with experiment, and a new branch of pidgin mathematics arises to deal with the topics where the old branch fails. The situation differs from the linguistic one in that pidgin mathematics generally seems to have come first, instead of developing out of standard mathematics. It is nevertheless true that pidgin mathematics is a different subject, to be assessed by different standards.

I have, on occasion, argued that physicists should know (not necessarily prove) correct statements of theorems and therefore ought not to say, for example, that (as this book implies) all continuous functions have convergent Fourier series. This now seems unreasonable; the mathematics of physics is not expected to be logically valid. Furthermore, the mathematics of one branch of physics is not expected to be valid in a different branch. This perhaps accounts for the authors' remark that Hankel functions are "of interest only in connection with non-integral n," thus (since Y_n is not introduced) leaving one helpless in problems about annuli. Again, the authors' treatment of the calculus of variations is in the metaphysical style of the seventeenth century, with "variations" that are sometimes zero and sometimes not. This is inexcusable if the idea is to prove anything, but perfectly all right if the idea is simply to furnish a mnemonic for Euler's equation.

The authors say in their preface, "The degree of rigor to which we have aspired is that customary in careful scientific demonstrations, not the lofty heights accessible to the pure mathematician." That is, this is a book about pidgin mathematics; as such, it will not appeal to any standard mathematician who may be looking for a text in applications of mathematics. It may, indeed, give him qualms about the validity of "careful scientific demonstrations." I need say little more, since practitioners of pidgin mathematics are unlikely to read this *Bulletin*. The first edition (reviewed in Bull. Amer. Math. Soc. vol. 57 (1945) pp. 508–509) was enormously successful. The second edition differs from the first chiefly by the addition of a section on Fourier and Laplace transforms. Parts of the book are primarily physical (thermodynamics, mechanics of molecules, quantum mechanics, statistical mechanics); some are handbook-style collections of facts (vectors, tensors, coordinate systems, matrices, numerical methods, and the parts of group theory that are too advanced for elementary texts and too special for advanced ones); some consider mathematical tools (differential equations, special functions, calculus of variations, integral equations). The physical parts seem lucidly written and can even be read by mathematicians who want to acquire a smattering of physics to impress their friends. The rest seems adequate within the setting for which it was designed, although even so some physicists have not found it altogether satisfactory as a text; perhaps this corresponds to the fact that (for example) a text written in Melanesian Pidgin would cause difficulties for a reader of Australian Pidgin.

R. P. BOAS, JR.

Computability and unsolvability. By Martin Davis. New York, McGraw-Hill, 1958. 25+210 pp. $7.50.

This book gives an expository account of the theory of recursive functions and some of its applications to logic and mathematics. It is well written and can be recommended to anyone interested in this field. No specific knowledge of other parts of mathematics is presup-