Book Reviews

The Presentation of Technical Information. Reginald O. Kapp. Macmillan, New York, 1957 (published in Great Britain, 1948). 147 pp. $1.95.

Among the peculiarities of modern man to which psychologists have given all too little attention are the pride of the intellectual in avoiding physical exercise, the pride of the man in the street in avoiding mathematics, and the pride of the expert in avoiding plain talk. The last of these three interesting phenomena is the concern of this little book on writing. The author is an Englishman, reminding us that murder of the King's English is as common in England as in the United States. His book is based on a course in exposition given for postgraduate students of engineering at University College, London. What makes it outstanding among such courses and books is that it not only has many helpful things to say about the mechanics of writing but also goes to the heart of the scientist's and engineer's problem of communication.

Reginald Kapp starts from the unarguable fact that communication of scientific work nowadays is virtually as important as the work itself. The scientist's day "is crowded with talks, conferences, committees." He must report what he is doing to his colleagues, to team mates from other sciences, to his sponsors, often to industry or the public at large. Unfortunately, there is no royal road to communication, any more than to the solution of a scientific problem. Successful communication is hard work. All too often the writers of scientific papers leave all the work to the reader—"to put into the right order in his mind what is in the wrong order in the paper, to draw the conclusions he is meant to even when they are not stated, to jump without any guidance to the significance of a statement, to bridge any gap the author's carelessness may have left in a line of reasoning."

Of course, no reader is going to do all this work except under extreme necessity. "He gives his attention only to those who know how to earn it and hold it. So those scientists and philosophers who neglect the problems of presentation should ponder on the fate of all tyrants in history. If they argue that these problems are too insignificant for their exalted study, if they plead that their time is valuable, they should reflect that the time of the person addressed is valuable too. If he can help it, this person will not waste his time quarrying [to dig out the ore]. In the end, the proud scientist or philosopher who cannot be bothered to make his thought accessible has no choice but to retire to the heights in which dwell the Great Misunderstood and the Great Ignored, there to rail in Olympic superiority at the folly of mankind."

What Kapp has to say applies to the communication between one scientist and another as well as between scientists and the larger public. Basically, the defects of most scientific writing in our day are logical and psychological: failure of the author (i) to present his thought lucidly and (ii) to consider the person he is addressing. This is not to overlook the fact that important contributions to the unreadability of much scientific writing are made by unnecessary impediments of pretentious language, clumsy sentence structure, and so forth. But good writing is more than a matter of simple language and accurate grammar, important as these are. It calls for clear, logical, and orderly development of the author's thesis. The account should be related to the reader's knowledge and understanding and must provide him with a map which "helps him to know from moment to moment where he is, how he got there, and in which direction his path lies." Kapp's book sets forth some specific and sensible precepts on how to achieve that kind of writing.

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Scientific American

Handbuch der Laplace-Transformation. vol. III, *Anwendungen der Laplace-Transformation.* Gustav Doetsch. Birkhäuser, Basel, 1956. 300 pp. Illus.

Anwendungen der Laplace-Transformation, by one of the outstanding European mathematicians, is the third of a trilogy comprising an inclusive account of the theory and application of the Laplace transform. The first volume, *Theorie der Laplace-Transformation* (1950), encompasses an inclusive treatment of the "pure" mathematical theory of the Laplace transform. The second volume, *Anwendungen der Laplace-Transformation* (1955) and the present third volume comprise, *in toto,* a unified account of that further body of theory which is particularly pertinent to solution of problems in engineering, physics, and applied mathematics and illustration of its use by numerous examples in these domains.

Volume II includes asymptotic representations, convergent representations, and solution of ordinary differential equations by Laplace transform techniques; each of these major topics forms one of the three major parts of the book. The present volume III encompasses a detailed treatment of the solution of partial differential equations, difference equations, and integral equations by Laplace transform means and a complementary account of entire functions of exponential type and of finite Laplace transforms. Each phase constitutes one of the four major divisions of the text. Unification of the two volumes into a single connected work is accomplished by continuing, from volume II through volume III, the numbering of the major subdivisions of the text (volume II: parts I–III; volume III: parts IV–VII) and of the chapter headings (volume II: chapters 1–16; volume III: chapters 17–32). Obviously, therefore, anyone who has volume II will want to obtain the complementary volume III.

This is divided into four major sections. The essential content, range of treatment, grouping of material, and relative stress on different topics is well epitomized in the following summary which includes free translation of the 16 chapter headings, pertinent inclusive page numbers, and brief accounts of the principal purpose that underlies the treatment of each section.

Part IV, "Partial differential equations," embraces five chapters: "Generalities concerning partial differential equations and their integration by means of Laplace-transforms" (pages 13–21); "Partial differential equations of the second order with constant coefficients" (pages 22–61); "Partial differential equations with variable coefficients" (pages 62–69); "Uniqueness theorems and compatibility conditions for boundary and initial conditions" (pages 70–78); and "Huygen's and Euler's principles" (pages 79–88).

These chapters comprise an excellent account of the single Laplace transform solution of partial differential equations in two variables with constant and, more briefly, certain types of variable coefficients under prescribed conjoined initial and boundary conditions. They