Solid-state high-frequency power
Irving M. Gottlieb
Reston Publishing Co. Inc., 1982, 246pp., £15.95

To the majority of electronics engineers, the solid state implies silicon integrated circuit chips with a high packing density of individual elements of binary logic, and where the power dissipation per element is made as small as possible. There are two other major areas of solid state devices, one where the objective is the handling of large AC/DC power using thyristors and related devices, and the other where analogue high-frequency signals are manipulated. It is this last area with which this book is concerned.

It is written primarily from the standpoint of technicians, radio amateurs and those interested in electronics as a hobby. Some of the descriptions will be of interest to qualified electronics engineers, but the continual comparison with vacuum tubes will not be relevant to most. Although Chaps. 4 and 5, on impendence matching and the application of transmission lines, respectively, are of value to the engineer, they are unfortunately marred by simple errors. The final two chapters concerned with a wide range of practical circuits and the importance of circuit layout are likely to be of most value if you are interested in constructing HF or VHF power circuits. Much is left to be learnt from practical experience.

C.S BROWN

Agents of change
Patricia Tisdall
Heinemann, 1982, 163pp. £20

This book is about the growth and coming of age (at the professional level) of management consultancy in the UK, and the role that consultants fulfil as 'agents of change'. It also reminds us how consultants have changed in the business and industrial economy, as it is only in the last 30 years that the management function has been separated from that of ownership in Europe.

The Management correspondent of The Times, is a business journalist who has written a very readable account of who consultants are and how they operate, with the full cooperation of the Institute of Management Consultants. The 3000 members represent the whole range of management disciplines, and professional engineers comprise some 40%, followed by accountants.

Incidental to the main theme, the book outlines the social history of changes in industry, from the work measurement techniques of Frederick W. Taylor at the turn of the century, via the Hawthorn experiments at the relay factory of Western Electric in the late 1920s, when there was first recognition of the importance of worker participation in productivity improvement, to the parallel work of the Gibreaths.

One of their pupils, Ann Shaw, developed motion study throughout the Metropolitan Vickers group during the 1930s, and these techniques were widely applied in industry during and after the last war. Another pioneer was Dr. Harold Whitehead, who, after gaining experience in the USA, returned to UK in 1929 and assisted both the gas industry and the telephone service in business organisation and sales training.

More recently, management consultancy has expanded to embrace all the functions of business management, and it is claimed that as generalists they have an awareness of how the different components of a business interlock, and how change in one section or function can have an impact on another. They achieve change mainly by persuasion and the influencing of people.

Consultants usually work in what can be described as a 'project mode'. They have to become absorbed with a problem, analyse it, implement a solution, and then disengage. They serve as a catalyst for change, on behalf of the ongoing management. A high proportion have 10-20 years' experience of working in this way, and their strength is in this background of very many different situations, and an ability to make contact with people at all levels in an organisation. They may operate in any of three main capacities:

• a purely advisory role, as in matters of strategic policy
• providing temporary executive manpower
• as facilitators, to help their clients help themselves.

In this latter role, they both help to resolve current problems, and also guide internal management in ways to do their jobs more effectively, and to encourage a consensus approach to industrial relations and a more open style of management.

In the 1950s and 1960s there were a small number of large general management consultancies, but this has now become a mix of large and small firms, and a significant proportion of individuals (now some 40% of the professional membership) working either alone or on an ad hoc basis as 'associates' of medium and large firms.

To quote Len Weaver, managing director of the P-E Consulting Group, president-elect of the IMC, and a Member of the IEE:

'Much of the skill ... is recognising that each client company is absolutely unique in terms of its past history, its origins and evolution and ... its cultural attitudes. You have got to understand why it is unique ... and what makes that company tick before you attempt to make it tick any faster ... the art of consulting is achieving successful change even though it may not be as much change as the purist would like.'

DENIS JOHNSTON

Understanding DC power supplies
B. Davis
Prentice-Hall, 1983, 232pp., £10.35

The preface makes it reasonably clear that this book is addressed principally to technicians, particularly those who have to repair power supplies to electronic equipment. It is almost entirely concerned with rectification, inversion and electronic regulating circuits for supplies to electronic equipment.

On basic theory the book is very weak, and omits a large amount of the information required for design purposes. For example, there is only the vaguest indication of how to choose a reservoir capacitor: the nearest the author gets is a rule-of-thumb (p.28) of $1\mu F$ per $1\text{mA}$ of load current, which can hardly be recommended at very low or very high voltages! The attention of LC and RC filters is correctly given, but no means are given to calculate the ripple-input voltage components.

The author generally uses a reversed convention for current (except for the chapters taken from manufacturers' data), which is very confusing. Perhaps it should be suggested to protagonists of the reversed convention that logically they should reverse all ohms, and transistor symbols also (which would cause rather an upset in the electronics industry).

There are also many mistakes. A few examples only are given: the transformer VA rating for a half-wave rectifier is given as the product of its RMS current (correct) and RMS output on the DC side (wrong), and p.13 where the concept of 'efficiency' seems to be confused between true efficiency and (presumably) watts output per kilogram of equipment. On p.69 a heatsink is said to reduce heat. It does not of course, only temperature. On p.107 a good summary of cooling modes, although it is a pity that the author insists on electrical insulation between semiconductor and heatsink, without giving the obvious alternative. D.C. convertors are said only to step up (p.112); in fact probably the majority now step down. There are many other mistakes.

Some sections of the book obtained from manufacturers' data and application reports, as would be expected, give a reasonable coverage of the subject, with some good tips. The sections on finding are also good, and are obviously based on the author's experience.

To summarise, the book can be recommended to technicians, whose interest is in understanding circuits qualitatively, and in fault-finding. It cannot be recommended to students, because of its numerous errors, or to designers because of its omission of design methods.

J.D. AINSWORTH

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