BOOK REVIEW

Roy Billinton: *Power system reliability evaluation.* Gordon and Breach, Science Publishers, New York–London–Paris p. 299

The basic problem of every electrical supply enterprise is to ensure rentability and reliability in supplying electric power. (Naturally, rentability and reliability are connected problems). While economic questions can be quantized to a more or less great exactness, the planning for the problems of reliability was made rather on the basis of engineer's sense until the fifties. The first articles to apply the theory of probability to power plants' and networks' questions were published around the fourties-fifties.

As far as I know, Professor Billinton's book is the first one to discuss uniformly and systematically the entire field of this problem. The book involves a short introduction to the theory of probability. This short summary is connected with the fundamental definitions of reliability theory. The author gives in an extremely efficient way those relationships of the probability theory, which are minimally sufficient to enable a practicing engineer, to perceive correctly the calculations implying relatively complicate mathematical results, without preliminary studies in probability theory and mathematical statistics.

The book finally deals with the problem of planning system generating capacity: presents the relevant, most up-to-date literature; discusses the evaluation of spinning reserves, then it turns to relatively recent problems, such as: transmission system reliability evaluation; reliability problems of composite systems and the planning of interconnection lines and interconnected systems on reliability basis.

The book discusses in a short chapter the design on reliability basis of high-voltage direct current's transmission. The work ends with the recapitulation of definitions in the reliability theory and with the confidence levels in the collection of generating unit outage data.

The book can be warmly recommended to every research or practicing engineer, teacher, student, dealing with electric power systems.

B. L. Sharma: *Diffusion in semiconductors.* 200 pp. US $ 9.80 pub. 1970

The book is primarily a reference book covering many reference data in the field presently available: impurity ionization energy, frequency factor and activation energy of diffusion, impurity solubility, and distribution coefficient.

It discusses the theoretical basis for diffusion in semiconductors listing the mathematical and graphical solutions of the diffusion equation for the more useful boundary conditions.

After that follows a detailed and lengthy compilation of all published impurity sources and diffusion conditions used for the doping of semiconductors.

The next chapter on methods for evaluating diffusion — while containing a good summary of the methods in use — seems to be more modest in the enumeration of data references.

Further chapters refer to diffusion in silicon and germanium, III—V, II—VI, IV—VI, and other useful compounds. Each chapter presents the present state of knowledge and points out peculiarities of diffusion phenomena. The listing of all available reference data for self — and impurity mass transport is supplemented by information on how the data were obtained, how they agree among each other and how accurate the author believes them to be.

The book contains nearly 500 references. 125 of them are early works of fundamental importance or priorities, some 360 are distributed evenly on the years 1960—1968. There are also a few papers cited from the first months of 1969. With regard to the enormous influx of information any claim of completeness would of course be impossible, but the author generally succeeded to compile the most important data without any bias. Work done and published in any part of the world received equal consideration.

I. P. Valkó