connected with 400 kw. high-frequency alternators through two or three frequency doublers connected in cascade. The smaller sections are connected to smaller machines. Although the antennæ are close they can be operated quite independently of one another.

Dr. Meissner, the engineer-in-chief, hopes to reduce the earth-resistance of the antennæ to a fraction of its present value. How much this resistance lowers the efficiency can readily be seen by the figures given in this book. For example, in one case the effective current in the antennæ is given as 360 amperes and its resistance is 2·7 ohms. We learn that radio-telephonic systems are now established between Munich and Frankfort and between Berlin and Hamburg.

Phytopaläontologie und Geologie. Von Prof. Dr. W. Deecke. Pp. iii + 97. (Berlin: Gebrüder Borntraeger, 1922). 6*s.* 3*d.*

PROF. DEECKE'S essays on broad questions of geology always provide interesting reading. The present work is perhaps unduly sceptical; but its stimulus to further comparison and correlation is based on careful reasoning. While mention is made of the importance of plants as rock-formers, the main thesis is their value for geologists as indicating topographic and climatic conditions in the past. The author shows how vegetation growing on cold uplands may become entombed in the downwash from mountain-sides, and he strongly opposes the notion that the flora of a sheltered Miocene marsh at Œningen may be used as an illustration of the contemporaneous flora on the Swabian Alb. Even the beautiful theory that the occurrence of rings of growth in fossil trees indicates an orderly recurrence of seasons, while their absence indicates a uniform climate, comes in for useful criticism. Though the author states the importance of calcareous algæ in forming Carboniferous limestones and, aided by their magnesium, Triassic dolomites, we miss a reference to the Cryptozoon question. This is a mere petrographic detail in the general discussion, which leaves us with the impression that geology, including the determination of local conditions of plant-growth, may be of more service to palæophylology than phytopalæontology can be to geology. G. A. J. C.

Practical Mathematics. By A. Dakin. Part 1. (Mathematical Series for Schools and Colleges.) Pp. viii + 362 + 12 + xxiv. (London: G. Bell and Sons, Ltd., 1921.) 5*s.*

THERE should be a considerable demand for Mr. Dakin's book, as it contains just the sort of mathematics that is required by those who have to learn some elementary mathematical processes for practical use: decimals, mensuration and a few other topics in arithmetic, algebraic formulæ and equations, graphical methods, the geometry of rectilinear figures, similar figures, the circle and the sphere, with some numerical trigonometry. The treatment is very pleasant, and the student who uses the book will certainly fail to experience the aridity that the popular mind associates with mathematics. Mr. Dakin's account of graphs is particularly good; the introductory portion with the comparison and correlation graphs cannot but grip the student's interest, and make him feel that the method of graphs is worth acquiring. Historical notes are incorporated in the main text, and occasionally they are worked in very skilfully. Presumably the tables are given the title "logarithmic tables" from force of habit: they contain only natural trigonometrical ratios.

If the second part maintains the high standard of the present volume, the author will have added a valuable treatise to available books on the subject. It is to be hoped it will not suffer the fate of so many sequels. S. B.

Cours complet de mathématiques spéciales. Par Prof. J. Haag. Tome 2, Géométrie. Pp. viii + 661. (Paris: Gauthier-Villars et Cie, 1921.) 65 francs.

THIS is the second part of Prof. Haag's complete treatise on pure mathematics as required by the ordinary student specialising in mathematics. The first part dealt with algebra and analysis: the present volume is geometrical in the widest sense. We thus have analytical and synthetic geometry in two and in three dimensions, all treated simultaneously. A correct description of the book is therefore to call it a compendium of modern methods in geometry; it contains a vast amount of information of a fundamental character, and makes excellent reading.

Contrary to usual practice, especially in this country, the author does not devote very much space to conics as such. Perhaps he is right in thinking that the general practice of making a long and detailed study of the curves of the second degree tends to endow them with an importance that their practical usefulness does not justify. On the other hand the methods of the calculus are used freely.

Exercises in illustration of the principles and methods are conspicuously scarce, and no examples are given for the student to work. One is led to wonder whether a student can derive any considerable benefit from reading mathematics like a novel.

The Foundations of Æsthetics. By C. K. Ogden, I. A. Richards, and James Wood. Pp. 95 + pl. I-XV. (London: G. Allen and Unwin, Ltd., 1922.) 7*s.* 6*d.* net.

THE aim of the authors of this short treatise on æsthetics, as stated by themselves, is to present in a condensed form the greater part of accredited opinion on the subject while relating it to the main positions of the theory of art criticism. The various theories are not brought into opposition, but are distinguished to allow to each its separate sphere of validity. Beauty is thus discussed as intrinsic, in relation to the medium, to mysticism, and to its social effects and the like. They themselves find the solution of the problem in synæsthesis, a term covering a state of equilibrium and harmony in which the percipient becomes more fully himself and at the same time is in sympathetic understanding with other personalities. Hence arises the educative value of art. This theory is acceptable so far as it goes, but, like much of the current theory of æsthetics, in describing the "how" it fails to answer the question "why," a matter in which the anthropologist, censured by the authors, may be able to assist, in view of the current vogue of non-European art.