those of the Rev. F. Ball, R.N., and of Capt. Aquino, of the Brazilian Navy, Mr. S. Ogura, the inventor of the method, commences by assuming such a point upon the chart that latitude and hour-angle are each represented by an exact number of degrees. In the subsequent procedure, however, he differs wholly from the methods of his predecessors, and by means of but one special table, occupying only eighteen pages, carries out his purpose in a manner which, in point of simplicity, is certainly not inferior to anything that has gone before. A second table of about nine pages is added, but this is nothing more than a specially arranged table of logarithmic secants, convenient, but not in any way indispensable to the principle upon which the method is based.

Other new and original tables given in the volume are those for finding azimuth, identifying an unknown star, and so forth, and the contents afford a fresh proof that no effort is spared by the Japanese naval authorities to keep in close touch with the many developments in the science of navigation that have taken place in recent years.

Le Destin des Etoiles: Etudes d'Astronomie Physique. By Svante Arrhenius. Traduction française par T. Seyrig. (Nouvelle Collection scientifique.) Pp. v+224. (Paris: Félix Alcan, 1921.) 8 francs net.

THE course of development of suns and planets from the primitive nebula to planetary death is discussed in this book. It deals first with the Galaxy, describing the conclusions of Wolf, Easton, Seeliger, Charlier, and Shapley on its extent and structure. The author ascribes the two great star streams to the interpenetration of two cosmic clouds, the rapid rotational motion of certain nebulæ that is revealed by the spectroscope being supposed to arise from the collision of nebulous masses in the course of this interpenetration. He holds that the dark regions in the Galaxy have been swept clear by the passage of cosmic clouds.

Several chapters are occupied with planetary atmospheres and with the changes that they probably undergo in the course of the planet's development. It is suggested that free oxygen is not present until the surface is sufficiently cool to be fit for the support of life. The habitability of the planets is also discussed, the moon and Mercury being classed as dead worlds, Mars as possibly supporting low forms of vegetation, while Venus is supposed to be in the carboniferous stage.

The book can be recommended for its bold speculations, which include in their scope much recent observational work.

A. C. D. CROMMELIN.

Kentucky Superstitions. By Dr. D. L. Thomas and Lucy B. Thomas. Pp. viii+334. (Princeton, N.J.: Princeton University Press; London: Oxford University Press, 1920.) 12*s.* 6*d.* net.

UNTIL recently Kentucky was the most remote and primitive of the States of America. Among the Mountain whites, as is well known to students of American social conditions, the law did not run; they lived in conditions which were practically tribal, and the most prominent features in their social habits were the blood-feud and the illicit still. The Lowland whites and negroes, the remaining elements in the population, were also very little touched by outside influence. It is therefore not surprising to find that the compilers of this collection have been able to get together more than four thousand instances of superstitions, among which a firm belief in witchcraft and in the efficacy of charms and magical cures in illness figures prominently. A large proportion of these beliefs will be familiar to students of British folklore. As the Kentucky population was derived mainly from the Carolinas, Maryland, and Virginia, these superstitions have a pedigree going directly back to England in the seventeenth century. The authors consider that the negro has assimilated white folklore, his only contribution being the Voodoo or Hoodoo beliefs. Certain elements, however, suggest that a closer examination might modify this view.

Notes on Dynamics, with Examples and Experimental Work. By Terry Thomas. Pp. 123. (London: Crosby Lockwood and Son, 1920.) 6*s.* net.

THE "notes" issued by Mr. Thomas deal with a fairly wide range of dynamical problems, and there are hundreds of excellent exercises, but this is all one can say in their favour. The diagrams are very roughly drawn, and the whole style of the book is reminiscent of the student's lecture notes. Thus one must object to a statement like "The engineer unit of mass is M/g, where M is the mass in pounds, and $g=32{\cdot}2$"; or "The various forms of energy are: potential, kinetic, heat, electrical, and chemical"; or "Neglecting the effect of the axle, the moment of inertia of a flywheel is $MR^2/2$," without saying anything about the construction of the flywheel; or "$I_z=I_x+I_y$" in dealing with moments of inertia, without mentioning that this refers to a plane lamina.

The author is of the opinion that it is much safer for beginners to reduce all forces to poundals and dynes, and carries this doctrine so far as to introduce the term "tondal." This is an interesting opinion, but it is very doubtful whether many teachers will agree with it.

S. BRODETSKY.

Countryside Rambles. By W. S. Furneaux. (New Era Library.) Pp. lvi+186. (London: George Philip and Son, Ltd., n.d.) 3*s.* 6*d.* net.

As a populariser of natural history Mr. Furneaux is already well known. In the present volume the contents of which are arranged in accordance with the four seasons, attention is directed to many of the more striking objects and phenomena, chiefly botanical and zoological, that are likely to come within notice during walks in the country. It is lightly and pleasantly written, and the forty-six plates of photographic illustrations are very successful.