

stance of the earth. A mountain-range denotes a lateral shrinkage of the outer crust. The portion of the earth that includes the geosynclinal masses and the resulting mountains is styled the "orogen"; the old and consolidated blocks are styled the "kratogen"—presumably because they exercise force upon the yielding orogen. All crust-disturbances originate in centripetal downward movement.

The immense part played by a forward movement that is largely gravitational is well shown in the treatment of the Alpine chains. Prof. Kober opposes the views of Suess as to the relationship of a general southward movement in Asia to a northward movement (a Rückfaltung) in Europe, and he urges that in both continents southerly and northerly thrusting may be traced. He introduces a number of useful conceptions. In the apparent absence of Mesozoic marine sediments round the Atlantic border he sees evidence of their recent submergence beneath the ocean: Africa is considered to be a vast block compressed within a ring provided by the Alpine orogen. Prof. Kober's treatise includes his own observations in the unfamiliar field of Syria, and his broad outlook maintains the tradition of the school inspired by Suess. Suess, continually revising his views in the light of later knowledge, raised more problems than even his long life could solve. We are still far from picturing earth-structure as bound by symmetry and rule.

GRENVILLE A. J. COLE.

Our Bookshelf.

Tychonis Brahe Opera Omnia. Tomi Quinti Fasciculus Prior: Astronomiae Instauratae Mechanica (1598); *In Solis et Lunae Motus Restitutos ac Sequens Diarium Prolegomena* (1598); *Specimen Diarii Anni 1599* (1598); *Ephemerides Solis Annorum 1586-1592*. Pp. 213. (København: Gyldendalske Boghandel, 1921.)

IN this volume, or rather in this fasciculus, we are given some of the most interesting if not the most important works of Tycho Brahe. The title-page of the volume with the editor's name appears to be reserved for the second fasciculus, but it is probably safe to conjecture that the new volume, like its predecessors, has been produced by Dr. Dreyer. The first of these works was printed at Tycho Brahe's press at Wandsbek in the duchy of Holstein-Gottorp, where he was the guest of Heinrich of Rantzau. Thither he had transported his observations and most of his instruments in consequence of a disagreement with King Christian IV. which had led him to leave Denmark. He was now seeking a new patron, and his eyes turned to the Emperor

Rudolf II., to whom this work is dedicated. It is in effect an attempt—as it happened, a successful attempt—on the part of the author to commend himself and his work to the emperor, and it contains an illustrated account of the structure and use of each of his instruments, an autobiography with an account of his achievements and projects, and an appendix describing his observatory at Hveen. The remaining works are now printed for the first time. The most important of them is the *Prolegomena*, which occupies twenty-five pages and treats generally the importance of the sun and moon in the universe and the corrections which the author has introduced into their theory.

On the whole it may be said that while these works do not contain any discovery which is not more fully treated elsewhere, they give us as good a conspectus as we could desire of his powers and achievements as an astronomer, and in the main his own judgment of his work is confirmed by the subsequent progress of science. His chief distinction lies in his genius in devising and his industry and ingenuity in using astronomical instruments, in which he stands immeasurably above all his predecessors. In his revision of constants and of theory he shows no genius, but a capacity which entitles him to rank next, perhaps, to Hipparchus and Copernicus. We shall doubtless be able to estimate his work better when the second fasciculus appears with the editor's notes.

J. K. F.

Icones Plantarum Formosanarum necnon et Contributiones ad Floram Formosanam. By Bunzō Hayata, Rigakuhakushi. Vol. 10. Pp. iv+335. (Taihoku: Bureau of Productive Industries, Government of Formosa, 1921.)

DR. HAYATA has devoted twenty years to the study of the vegetation of the island of Formosa, which, lying directly under the tropic of Cancer, and possessing mountain ranges rising more than 10,000 ft. above sea-level, presents almost every kind of climatal and topographical feature, with an extraordinarily rich flora embracing tropical, temperate, and even alpine elements. Climatic conditions and the activity of the head-hunters of the interior had restricted exploration to the coastal regions before the acquisition of the island by Japan. Dr. A. Henry's "List of Plants from Formosa" (1896), the first attempt to outline the flora, included 1428 species. This number has been nearly trebled by Dr. Hayata's efforts since his first visit to the island in 1900, and by later visits, as well as by his elaboration of collections made by other botanists. The present volume, the last of the series, includes an index to the ten volumes, comprising 3658 species of flowering plants and ferns, representing 1197 genera and 170 families. More than 1200 species are new, and among the new genera is the remarkable conifer, *Taiwania*. The volumes are profusely illustrated and form a very valuable contribution to the taxonomic study of an area of special interest.