

the kindred industries embracing Wood Tar, Asphalt, Ozokinite, Peat, Lignite, Bone Oil, Fixed Oils, Cellulose, etc. Appendix A provides a description of the six principal types of shale retorts, each being illustrated by a figure, and appendix B furnishes a complete bibliography of destructive distillation in its modern development. A neat summary describes the application of heat to cellulose and kindred bodies as leading to cumulative resolution, the process being in principle the same whether performed by nature or by human contrivance. At a high temperature the liquid distillate is characteristically "aromatic"; at a low temperature "fatty." In either case the persistence of the $n C_8$ group can be freely traced throughout. Inasmuch as a chemical equivalent for much of the "temperature" can be found in "time," petroleum may appear in rocks never actually igneous; and we can understand the occurrence of degraded hydrides, such as turpentine and other "aromatic" compounds in living trees.

C. P.

Poole Brothers' Celestial Handbook and Planisphere. Compiled and edited by Jules A. Colas. Chicago, Poole Brothers.

THE above publication is made up of two parts, the Handbook and the Planisphere.

The planisphere consists of a stiff, circular cardboard, about twenty inches in diameter, upon which has been engraved all the principal constellations that can be seen from the North Pole to 50° south declination. Fastened to the circular disc is a frame made of the same substance, and formed so as to project the horizon upon the sky, and also to assist in noting the days of the year. The planisphere is exceedingly handy, as the explanations printed upon it suffice for finding the approximate time at which any celestial body rises, culminates, or sets. In the hands of the learner of the constellations the planisphere is a great improvement upon the ordinary star-maps.

The handbook, which serves as a companion to the planisphere, contains in a neat form references to the principal constellations,

the interesting double stars, the same being neatly illustrated, and the brighter nebulae and star clusters. Short notes are given which contain the names, magnitudes, distances, and colors of the doubles. Tables are also to be found, giving the names of the bright, fixed stars, the principal binaries, colored stars, and those having a parallax. These are followed by short sketches of the phenomena of shooting stars; the principal periodic comets, and those that have an interesting history, and, last, the principal planets.

As Mr. Colas has simply compiled the remarks in the handbook, it is possible for one to find certain statements that may be questionable. He has probably fallen into pitfalls by following too closely some of the writings of Flammarion. For example, the statement that the earth and moon as seen from Sirius would appear as a spot is exceedingly misleading. A simple calculation would show that from the boundary of the solar system, that is, from Neptune, the moon as seen from that point would never depart more than 18 seconds of arc from the earth.

We note that Arcturus and Alpha Bootis are mentioned as if they were two distinct stars. This is probably a slip of the pen, as well as the statement that the constellation Cassiopeia can be seen every day.

The author has carried his book well down to date, as mention is made of Barnard's discovery of the fifth satellite of Jupiter, and Anderson's discovery of the new star in Aurigæ.

In our opinion the statement quoted from Flammarion's "Les Etoiles," that Baron Dembowski observed the yellow companion to 15-Lyncis covering the blue one by one-fourth of the former's diameter, is exceedingly doubtful.

A star, as seen in the most powerful telescope, is a point of light, never a disc, and such statements as the above are, to say the least, misleading.

The compiler has, in a note on Neptune, raised the question of priority of the discovery of the position in which the outermost planet would be found.

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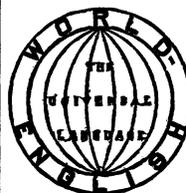
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