

ously estimated. Sir William Herschel states that the polar diameter is about $\frac{1}{10}$ less than the equatorial diameter; but according to Arago, the two diameters are in the ratio of 189 to 194 which gives a compression of $\frac{1}{30}$. Even this compression appears irreconcilable with the supposition that the figure of the planet is the figure of equilibrium of a fluid body.

The compression of the planets of the second class varies from $\frac{1}{14}$ to $\frac{1}{10}$.

The compression of a planet depends not merely upon its velocity of rotation, but upon the ratio of its centrifugal force to the gravity of the planet, and upon the law of density from the surface to its center. The centrifugal force can be computed when we know the time of rotation, but the law of density in the interior of the planet we have no direct means of determining.

Here then we find two classes of bodies with characteristics plainly marked; and if we suppose the asteroids to have been once united in a single body, probably no one would hesitate to assign it to the first of these classes.

These coincidences are so striking that we seem irresistibly led to the conclusion that the time of rotation of Uranus upon its axis cannot much exceed that of Jupiter or Saturn; and it is improbable that the period of the asteroid planet could much exceed twenty-four hours.

I cannot therefore agree with Mr. Walker in his conclusion that "whether Kirkwood's analogy is or is not the expression of a physical law, it is at least that of a physical *fact* in the mechanism of the universe." Even if future discoveries should prove it to be a *fact*, the law seems irreconcilable with what we must at present regard as the most probable values of the planetary elements. It is however much to be desired that the periods of rotation of each of the planets, particularly that of Uranus, should be determined with all possible precision, in order that any uncertainty which now rests upon this subject may be entirely dissipated.

ART. XXVI.—*On a new Genus of Crustacea in the Collections of the U. S. Exploring Expedition under Capt. C. Wilkes, U. S. N.*; by JAMES D. DANA.

THE genus *Trapezia*, as instituted by Latreille and accepted by authors, embraces two distinct genera, which are similar in the general form and appearance of the species, but are readily distinguished by several characters. The *Trapezia cymodoce* is the type of the true *Trapeziæ*, the *T. digitalis* or *glaberrima*

of the other genus. The following are their characteristics, omitting the points in which they agree.

GENUS TRAPEZIA.

Frons sinuosus vel 6-8-dentatus.

Maxillipedes externi marginem posticum fere transversum; apicesque articularum secundorum inter sese valde remoti.

Superficies prælabialis viaque efferens lineam elevatam divisam margoque buccalis anticus utrinque emarginatus, emarginatione viae efferentis ostio.

Pedes antici elongati, brachio extra carapacem valde exserto, margine brachii antico denticulato et apicem anticum acuto, manu fere recta, pollice parce deflexo.

Pedes 8 postici non unguiculati, tarso apicem pusillè producto et truncato.

Abdomen maris sæpius 5-articulatum.

GENUS TETRALIA.

Frons rectus aut rectiusculus, subtilissimè denticulatus.

Maxillipedes externi marginem posticum valde obliquum, apices articularum secundorum inter sese paulo remoti.

Superficies prælabialis viaque efferens lineam paulo elevatam divisam sed margo buccalis anticus vix emarginatus.

Pedes antici breviores, brachio apicem paulo exserto, margine brachii antico apicem rotundato subtiliterque denticulato, pollice valde deflexo.

Pedes 8 postici, breviter unguiculati.

Abdomen maris 7-articulatum.

The name *Tetralia*, from the Greek τετρα four, alludes to the subquadrate form of the species. The *Grapsilla* of M'Leay, as shown by Krauss and others is identical with *Trapezia*. The want of a proper claw to the tarsus in the *Trapeziæ* is a striking character, and is an anomaly among the Cancrinea. The extremity appears truncate in a side view as well as in an upper, and has nothing of the texture of a claw except in its minute points or setæ; while in *Tetralia* the tarsus is pointed in a side view though somewhat truncate as seen vertically; and the texture of the extremity is horny like a regular claw, which same texture extends back on either side.

In the closed orbits, the antennæ being wholly excluded, and in the ridge separating the efferent canal from the prælabial space as well as the narrow form, these genera are related to *Eriphia*. Fuller descriptions with many illustrations will be given in the Author's Report on the Crustacea of the Expedition, now ready for the press.