XXXII. History of astronomy for the year 1806

Jerome de Lalande

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XXXII. *History of Astronomy for the Year 1806.* By
JEROME DE LALANDE.

[Concluded from p. 129.]

THE *metre des archives* of the legislative body and hat of the observatory have been placed by the new comparator of M. Le Noir at 23° of the centigrade thermometer: they differ only by a 600,000th part from each other, but we cannot account for this difference: the comparison was made by Messrs. Delambre, Prony, Burckhardt, and Bouvard.

M. Chevalier, keeper of the library at the Pantheon, who accompanied Mechain into Spain, has re-established the observatory of Pingrè with very excellent instruments.

M. Leupold, who has laboured along with me in Paris, has undertaken to re-establish the observatory at Bourdeaux; he is assisted by Messrs. Lescar and Ducum. They have applied to the administration to enable them to proceed with the necessary repairs; and they propose to procure a quarter of a circle. This establishment will certainly be of great use in a place where there are such a number of seamen.

The marine department has furnished some works this year. In the third volume, for 1806, of the *Ephemerides* of Coimbra, there is a table of longitudes made from the triangles of Portugal. The Hydrographic Board at Madrid has furnished several of them. We there find a memoir upon the rhomboidal reticule, and one upon the use of the meridian glass, when it has a deviation. We there find *Demonstração e ampliação do Calculo dos Eclipses proposto no primeiro Volume das Ephemerides de Coimbra*, 1806.

But this method does not seem to me to have any advantage over the others; it proceeds upon the tables of the *Ephemerides* of Coimbra.

Elémens Historiques-pratiques de la Marine, by M. Suzanne. We there find the calculation of the resistance of forces, with naval tactics and manœuvres.

M. Ducum, professor of navigation at Bourdeaux, has published a memoir entitled “New Method for determining the

the Latitude at Sea by Altitudes taken out of the Meridian, and the Longitude by an Altitude of the Moon in several Cases." 36 pages 4to. He shows the inconveniences into which we may fall by employing the method of d'Awes, and the precautions which may be taken to avoid them. He was not acquainted with the grand work with which M. Mendoza was occupied.

With respect to the method of the longitudes, it is long since Lemonnier, Pingrè, and myself, showed its utility; it is specially indicated in page 68 of my *Abregé de Navigation*, as being able to simplify considerably the method of the longitudes by means of the horary tables I have published with this abridgment.

The new lunar tables of M. Burg serve for calculating the observations of longitudes made in the voyage of New Holland; and Michael Lalande has calculated for this purpose several observations of the moon at the meridian.

It remains to recalculate all the observations made in the three voyages of Cook, because they have been compared with the lunar tables we had at that time, and which were not exact enough to hold the place of corresponding observations.

Geography has this year made new progress. Mungo Park has written from Tombuctoo on the coast of Africa. A report had been spread of his death. His return will make us acquainted with some curious circumstances respecting these unknown countries.

The vessels the *Navesda* and the *Neva*, which left Cronstadt on the 7th of August 1803, under the orders of captain Krusenstern, returned on the 4th and 19th of August 1806, after having sailed round the world. This is the first circumnavigation of the Russians. M. Horner made several important observations for geography upon the coast of Tartary. There are several of them in the *Journal of Gotha* for September 1806, in which baron Zach continues to publish every thing interesting in astronomy; another proof how necessary it is for an astronomer to be acquainted with German.

M. Nisnieuski, astronomer to the Petersburg Academy,
has

has made some journeys and voyages for determining the principal points of the new acquisitions to the Russian government in Lithuania, Volhynia, Podolia, and Taurida.

In the spring of 1804, captain Lewis was directed by the president of the United States to ascend the Missouri to discover the easiest way of reaching the Pacific ocean*. For this purpose he left Washington, accompanied by captain Clark and thirty men, forming a small caravan: they ascended the Missouri to within 930 leagues of its grand cataracts; they then traversed the rocky mountains in the neighbourhood, where they were under the necessity of wintering, on account of the snow with which these mountains were covered; and in one part, extending about twenty leagues, the snow never melts. Captain Lewis proceeded 120 leagues to the navigable part of the river Kooskooske; from Kooskooske to the south-east branch of the river Columbia, 25 leagues; from this branch to the bed of the same river, 50 leagues; and, lastly, they travelled along the river Columbia to its mouth, being 150 leagues: which gives a distance of more than 1200 leagues from the mouth of the Missouri to the Pacific ocean.

Captain Lewis observed that the tide flowed 30 leagues up the Columbia; that is to say, to within two leagues and a half of its cataracts, to the place where it is navigable for large vessels. Above this place it is only navigable for canoes and flat-bottomed boats.

The Relation du Voyage de Découvertes faites aux Terres Australes pendant les Années 1800, 1801, 1802, 1803, 1804; comprising, 1st, The historical part: 2d, The manners and description of the people: 3d, The physical and meteorological part; forming together four vols. in 4to, edited by Messrs. Peron and Lesueur, will be published at the expense of government.

The natural history part of the same voyages and travels will be printed and published by subscription.

M. Gualtie, a naval officer belonging to St. Maloes, has made a great number of observations in the country of the Mississippi, in North America.

* See Phil. Mag. vol. xxvii. p. 13, &c.

M. de Lowenhohn has published in Denmark a chart and description of the Faro isles between latitude $61^{\circ} 25'$ and $62^{\circ} 25'$, in order to form a continuation to the grand and beautiful chart of Denmark, in several sheets, which has been drawn by the Danish geographical engineers.

The proposed visit of the missionaries to China not having been accomplished this year, the instruments intended for these travellers have been in the mean time deposited in the observatory.

M. Buache has given notice of a curious chart for the history of geography,—*La Mappamonda di fra Mauro descritto ed illustrato da placido xurla Venezia 1806*, in folio. This map of the world, made at Venice about the year 1457, is curious, as it makes us acquainted with the geography of that period: it was drawn for Alphonsus V., king of Portugal.

M. Dupuis, author of the grand work *l'Origine des Cultes*, continues his researches upon the same subject. He has discussed thirty antient theogonies; he has compared the constellations of China and of the Indies; and he has made a curious planisphere of them. Among the singularities which his inquiries have presented to him, we may reckon the explanation of the four rivers of the terrestrial Paradise, which are the expressions of the four signs of the zodiac. According to Joseph, the first expresses *plenitude*, being the part of long days. The second, being *dispersion*, answers to the autumnal equinox. The third, being narrow and rapid, expresses the short days of winter. The fourth signifies the *coming from the east*; this implies the rising of the sun in the regeneration of spring by the reforming Lamb, which effaces the evils of winter at his heliac rising,—an emblem of Christ, who wipes away the sins of the world. The Chinese have also the *Yellow river*, the *Red water*, and the *Water of the Lamb*, according to lord Macartney.

M. Dupuis has also published a “Memoir for explaining the chronological and mythological Zodiac;” a work containing the picture of the houses of the Moon among the various nations of the East, and a view of the most antient
observa-

observations connected with it, according to the Egyptians, the Chinese, the Persians, the Arabians, the Chaldeans, and the Greeks.

This zodiac, which has been engraved in a very superior manner at the expense of M. Volney, contains the 27 natchtrons of the Indians, the 28 under the Chinese, the 28 kordens of the Persians; that is to say, the houses which the moon passes through in a month: and the learned author has drawn from these comparisons results which are extremely curious, in-so-far as the antiquity of these various zodiacs is concerned; among others this important idea, that we ought not to confine ourselves to the observations which have been transmitted to us; the initial point of the division being more antient, while we have only been able to date it from the equinoxes and solstices 4700 years before the vulgar æra.

This gives him the explanation of the Indian fables of the Phœnix, which is only the period of 1460 years, and several other curious points of erudition. He is at present occupied with his collection of thirty theogonies, in order to complete his great work on the origin of the different religions. He remarks, for example, that Adam and Eve are the constellations of Charles's wain and of Virgo, each of which has a serpent, and which are near the autumnal equinox. When Adam rises, Eve seems to follow him, and she announces the entrance of evil into the world.

There has been printed in the 47th volume of the Academy of Inscriptions, a long memoir of M. de Guignes on the origin of the zodiac of the orientalists, extracted from a distinct work concerning the Egyptians and Chinese, not yet printed. He thinks that the Greeks, for want of being better acquainted with what the Egyptians taught as to the course of nature, formed a zodiac; but the names of the Ram, the Bull, &c. are not names of constellations; it is a division of the year into twelve parts, corresponding to the productions of the earth and the influence of the sun. We see throughout the whole of the east a crowd of constellations, which take up the places of the Ram, &c.: these signs,

signs, therefore, did not exist antiently. M. de Guignes infers from what we now know of the Chinese system, that the Egyptian was the same.

The losses to science this year from the deaths of learned men have not fallen upon astronomers; but M. Coulomb, to whom magnetism lies under great obligations, deserves our regret, as I have shown in the discourse I pronounced over his tomb, and which I printed: M. Delambre has also noticed his death in an elegant manner in the *Memoirs of the Institute*.

In the *Ephemerides of Milan* for 1806, M. Cesaris has given the Life of Francis Reggio, born at Genoa on the 25th of April 1743, and who died at Milan on the 12th of October 1804, whose labours have illustrated the Milan observatory for these forty years. I have often taken occasion to speak of the *Ephemerides of Milan*. M. Reggio has been replaced by M. Carlini: M. Flaugergues has published the eulogy of M. de Ratte; M. Vitalis has read to the Academy of Rouen that of M. Dulague.

I forgot to mention in the *History of Astronomy for 1804*, George Shuckburgh, of whom I have spoken in my *Travels through Italy*, on account of the altitudes of mountains measured by him in several countries (*Phil. Trans.* 1777); and also on account of the fine equatorial he caused to be constructed upon his estate, (*Astronomie*, art. 2410.) It is a great loss to the science that this instrument must be now useless for want of an observer.

They write from Ratisbon, of the 5th of March, that count Sternberg, vice-president of the electoral directory, has published a project of a subscription for erecting a colossal statue of Carrara marble to the celebrated astronomer Kepler, who died at Ratisbon in 1630, on his way to Vienna. The elector was the first on the list of subscribers for the sum of 1000 florins.

Marshal Ney having entered Thorn on the 6th of December, I wrote to request him to erect a small monument to the great Copernicus, who was born in this city on the 19th of February 1473: this monument will preserve the
memory

memory of the conquests of the French, and their taste for the sciences.

The meteorology of this year has presented some extraordinary variations; there have been neither any very great heats nor colds, but plenty of tempests.

In November 1805 there was an earthquake at Frankfort. On the 20th of January 1806 there was a rumbling noise at Orgon and the mouths of the Rhone, which awakened the inhabitants. On the 10th of January there were storms at Bourdeaux, Brest, Rouen, Paris, and Ypres.

On the 11th of January there was a dreadful storm in the neighbourhood of Chartres, Dijon, and Nancy; an extraordinary hurricane at Besauçon; there was a thunder storm at Toulouse, and there was an inundation at Rotterdam.

On the 20th, in the department of Landes, there were some buildings burnt, and some trees torn up by the roots.

On the 28th there was experienced at Poitiers two shocks of an earthquake, accompanied by a prolonged rumbling noise; the thunder fell upon the steeple of Cervo, near Savone, and the steeple of Albisola was thrown down; it fell upon the steeple of Bezaudun, near Grasse. Thus these stormy clouds occupied more than a hundred leagues in extent; which confirms the explanation of hurricanes which I gave in the *History of Astronomy for 1805*.

On the 13th of March, at Havre, Caen, Antwerp, and Brest, there were dreadful hurricanes; and several shipwrecks on the coast of Holland.

On the 9th of June there was a dreadful hurricane at Salerno.

M. Blanc, captain of a corps at Palma Nova, in Venetian Frioul, observed a singular water-spout, which I gave an account of in the *Journal de l'Empire* of the 22d of August, and in the *Moniteur* of the 23d.

On the 29th there was a very strong wind at Nantes: at Paris some chimneys were thrown down, trees were torn up by the roots, and all the fruits were shaken off.

In September there was a dreadful storm at Martinique: 300 persons perished at Dominica.

On

On the 8th of August there was an earthquake upon the banks of the Jenisseick, in Siberia.

On the 11th of December, in the neighbourhood of Mayenne and Vitrie, three steeples were destroyed by thunder: on the 13th it thundered at Brest: on the 14th it was as fine a day at Paris as any in spring; the cold commenced after the moon's passage through the equator.

M. Lamarck has published, for the eighth time, his Meteorological Annuary for 1807: he congratulates himself for having had the courage to devote himself to the study, and for undertaking the publication of this annuary: at first he only considered the two alternate declinations of the moon; at present he considers the different systems of the moon's influence, and the perpetual substitution of the one for the other. These different systems change incessantly their relations and their effects at every lunar point; the new moon, apogée, equinoxes, and solstices, vary on account of the general disposition of the other points at the epoch at which they arrive; and he deduces from this, for every month, probabilities for the temperature.

He has given in the 7th volume, for 1806, an epitome of his meteorological system, which is only applicable to the generalities of the atmosphere. He gives in the latter the influences which the general disposition of the lunar points seems to him to exercise upon every arriving point; whence result for this point modifications which render its action sometimes efficacious, and sometimes incapable of being so.

He has added some memoirs upon easterly and westerly winds, and upon the difference of phænomena, upon atmospheric electricity, and upon the courses of its variations.

I am desirous that observers should examine and verify the principles and results, which have been perhaps too much neglected hitherto. If there were a great number of points of observation, we might succeed in following the direction of a wind from its origin, and thereby arrive at its cause, and follow these variations and effects.

After having announced all the good books which have
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appeared, in order that we may read them, it may be useful to speak of those whose titles might deceive us.

Essai sur le Monde, by M. Azais, 1806, in 8vo. He endeavours to prove the necessity of a first impulsion; the infinity of the universe and light as the cause of movement by the impulsion of rays, and as the cause of gravitation, the impulsion of the stars being greater than that of the sun: he read one part of these singular ideas to the Institution. The *Mouvement de la Matiere en tout Sens*, and the *Corpus-cules ultramondains*, with which M. Lesage has been busy all his life at Geneva, may serve as a support to the system of M. Azais: but scientific men disdain these kinds of hypotheses, as being destitute of proof, and not being capable of teaching us any thing.

M. de Lormel has published supplements to his *Grande Periode*, in order to give new proofs and new applications for the six days of the creation and the prophecies of Daniel. He endeavours to refute what I have already objected to him, that the diminution of the obliquity of the ecliptic cannot form a period, since it cannot continue according to the well-known cause of this diminution.

There has appeared a book, the title of which deceived me, because I never thought of meeting with any thing like astronomy in it. It is entitled *Hommage à Pius VII. et Napoleon-le-Grand, or Junction of Religions*; by Alex. Jos. Guyot, curate of Cambray. He speaks of the atmosphere of the comets; he thinks he has discovered the size of the stars: but it may be easily seen that he confounds the apparent diameter of the stars with the annual parallax, which can enable us to judge of their distance. He is persuaded that he has demonstrated that the sun does not turn round, because the moon would each day have all its phases. He does not comprehend that, the moon having a semi-diurnal motion with the sun, it is all one whether this movement be apparent or real.

Thus, all these astronomical articles prove that he has not profited by my lectures, at which he says he was present.

“Discovery of the Orbit of the Earth; of the central Point;

Point; of the Orbit of the Sun; their Situation and Forms of the Section of the Zodiac by the Plane of the Equator; concordant Movement of the two Globes: by M. C. I. E. d'Aguila, 1806."

The author first explains all the known systems; he afterwards gives an astrostatic, in which he asserts that the sun traverses the ecliptic with a very large circle, and that the earth traverses the equator with a very small circle. He rejects all eccentricity, as being contrary to the divine wisdom of the Creator; he is so riveted to these absurdities, that in page 256 he says, when speaking of the mean sun which I made use of for the equation of time: "There is no occasion for quoting such an author, but we should turn to the sacred writings, where every thing is published, and which has tended more than any other writing to form authors for this half century past; whilst the works of this writer have been so much filled with the absurdities and errors of modern philosophy, that posterity will only preserve some leaves of them; that is to say, the notions furnished by artisans for the part of the measures."

In speaking of the refraction, which shows a star at the horizon although it is still below it, he adds: "These burlesque metaphysics, which would be laughed at by the savages of California, have been supported by the commonplace tables furnished according to a false principle of an unique centre." He does not even understand that there are six months of constant night under the pole; he finishes by saying,—“May this publication participate in the enlightening of the nineteenth century!”

“*Nouvelle Decouverte*: being one of the grandest Discoveries that Men have ever yet made, comprehending the natural and physical Cause of that beautiful Phænomenon in the Sky called the *Milky Way*: by Laurent Potier des Laurieres.” I should not mention this pamphlet if it had not been announced as having been presented to the legislative body. The author thinks that the rays of the sun, broken and divided by the contact of the earth, go to form the circle of the *milky way*, which is only 180 leagues distant, and which

runs through the whole circle of our horizon in the space of 29 years.

There is also published a pamphlet entitled "New Discovery of the Flux and Reflux of the Sea," the physical cause of which is said to be the double movement of the globe. A chimera of the Newtonian attraction. This may suffice to show the absurdity of the work.

The same author has also published a new discovery of the quadrature of the circle, which shows that nothing can be expected from his astronomy.

There is likewise a book published called "Elements of the Philosophy of the Heavens." I was very much deceived by this title: I thought it was a book upon astronomy, but it is upon devotional exercises.

XXXIII. *On the Alkalies of Commerce, and on the least expensive Process for ascertaining their commercial Value by Means of the Instrument called the Alkali-meter. Read to the Academy of Rouen, 5 Thermidor, An. 13, by M. DESCROIZILLES senior.*

[Continued from p. 178.]

Invariability and Facility of the Alkali-metrical Proofs.

A GRADUATION like that which we have been describing is truly natural and invariable; there is nothing precarious in it: in short, let us examine the operation we have described.

We have, on the one hand, put into solution one decagramme, that is to say, ten grammes or 100 decigrammes of potash; nevertheless we have only taken definitively the moiety of this solution; thus it is reduced to 100 half-tenths of the grammes: on the other hand, we have put into the alkali-meter 38 grammes, that is to say, 76 demi-grammes of a liquor composed of one part in weight of sulphuric acid and of nine similar parts of water: the 76 demi-grammes of the test liquor therefore contain 76 demi-tenths of grammes of effective acid; and, if it required 55 demi-grammes of this
liquor