ON
PERIODS OF YEARS,
BEING A SEVENTH CONTRIBUTION TO
PROLEPTICS.

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TIME has always been measured by the motions of the sun, and moon, and stars. The apparent motion of the sun round the earth, or of the earth on its axis, has measured days; the revolutions of the moon round the earth marked weeks and months; and the motion of the earth round the sun determined the year and its seasonal divisions.

These are simple periods, and have been already noticed; but those comprising a lapse of years were measured by the motions of the sun, moon, and earth, in relation to the stars. The observations on which these divisions were founded constituted the basis of true astrology, or that old system of astronomical and meteorological proleptics of which a few mutilated fragments only remain. Up to a late period the solar cycle of 28 years, and the lunar, or Metonic, of 19, were much in use; and these multiplied with the indiction or arbitrary period of 15 years, gave Scaliger's Julian period of 7980 years. Among the ancient Chinese, Chaldeans, and Egyptians, all the great periods were natural astronomical cycles, and those of the two latter were divisible by the number 7; but this was proper to the periods, and not a forced harmony of numbers. Thus, the cynic cycle was the great Egyptian period of 700 years (7×10) in which the conjunctions and feriae returned in the fixed Sothic year of 365 days 6 hours; and it consisted of four common vague lunar periods of 175 each, this latter being obtained by multiplying the vague lunar cycle of 25 by the vague solar cycle of seven. This latter is the sabbatical cycle of Moses, and, according to Dr. Nolan, is of antediluvian origin, and an adequate instrument for deciding contested points in chronology. The embolismal period of 1440 years originated, according to Mr. Cullimore (Trans. of the Royal Society of Literature), with the Chaldeans. It is the period during which the twelve months become intercalated in succession, and this period, with the addition of an unit, is divisible by 49 (7×7) without a remainder. Other cycles of immense extent were marked by the ancient astronomers. According to Mr. Cullimore, the Chaldeans represented the origin and destiny of the world as depending upon two grand astral conjunctions, on the occurrence of which in a peculiar season of the year and point of the heavens, it was fated to perish by a deluge or conflagration. In his "Analysis of the Egyptian Mythology," Dr. Prichard shows that these and similar views were not peculiar to the Chaldeans. They were known to the ancient Egyptians,

Indians, Greeks, and Romans; they constituted the foundation of the old Runic Mythology, and are easily traced in the cosmogony of the Aztecs, or ancient Mexicans, who probably had them from China or India, by way of Tartary. Dr. Prichard says,—“The Egyptians represented the world, in some of their philosophical reveries, as subject to occasional destructions and renovations, which succeed each other at distant intervals in a perpetual vicissitude. At the end of each period, the whole assemblage of celestial phenomena, which are regarded as the influential causes of all changes in the sublunary world, being restored to the same initial order, and proceeding in the same catenation as before, the whole series of events that depend upon them follow in their former connection of place and time. The same individual men are doomed to be born again and perform the same actions as before, the same arts are to be invented, and the same cities built and destroyed.”

“Alter erit tunc Tiphys, et altera quæ vehat Argo
Dilectos heroas; erunt etiam altera bella;
Atque iterum ad Trojam magnus mittetur Achilles.”
VIRGIL, Eclog. iv.

This annus magnus, or great cycle, was calculated at from 300,000 to 360,000 years. Speculations of this kind might be infinitely extended, because the universe is infinitely extended, and its innumerable parts subject to a simple, unchanging, universal law of motion. Just as each planet in our planetary system revolves round the sun, so may the sun and its subject planets revolve round another central sun, and so on, *ad infinitum*; for where shall we place the limits of the universe?

It is manifest that such cycles were matters of speculation, and their periods calculated by the ancient astronomers. Of course, the knowledge of these periods can have no practical application. The future of 360,000 years may well be left to take care of itself. There are minor periods, nevertheless, which fairly come within the scope of the physician and philosopher, and one or two of these I shall notice.

Periods of years may be determined in various ways. The science of astronomy, as we have just seen, marks them; and so, also, do changes in the electricity and magnetism of the earth and air. Thus, comets, earthquakes, meteors, violent thunder-storms, hurricanes, immense floods, thick fogs, great heat and cold, &c., may be instrumental in determining these periods. The latter phenomena may react upon animated nature, and induce famine, fatal and wide-spreading epidemics, the sudden migration or extraordinary multiplication or mortality of animals, as locusts, mice, &c. Famine and pestilence may react upon society at large, and lead to civil strife, revolutions, wars, and the migrations of

nations. Now, all these have been recorded to recur periodically in two ways; first, they have been popularly classed together as cause and effect in all ages; and, secondly, they have been classed together by astrologists as the effect of sidereal influence. A remarkable illustration of the latter kind occurred to me lately. A believer in astrology, having read my first essay of the present series in which I applied the term "quackery" to the practices of astrologers, nativity-casters, &c., wrote me, on September 17th last, a letter on the subject, taking me to task for applying so improper a term to his favourite pursuit. "Before I conclude, however," he observes, "I will just make one prediction, in order that you may see that astrology is not 'quackery.' On the 17th day of October, in this present year, the planets Saturn and Mars will be in conjunction, and both in square to Venus. Now, these aspects were never known to occur without producing a dreadful storm of wind and rain, and which was followed some little time after by a ravaging fever, or other mortality. . . . Expect, then, on the 17th of October next, a *severe storm*, which will cause great floods, much destruction to shipping, &c. As the aspects continue for some days, the storm may begin a day or two before the 17th October, and continue a little while after. In the latter end of this year a fever, or other contagious disease, will ravage many parts of England, and which will be more fatal than has been known for many years. These aspects never occur without being followed by a great mortality." This connects great atmospheric variation with epidemic influences, and it is but justice to my anonymous correspondent, who signs himself, "A Friend," to say that his prediction about the storm was verified to the letter as regards England; in the United States and Canada it occurred on the 26th October. The coincidence is worthy investigation, and the more so as the same storm was predicted by other astrologers long before it occurred;* and although there is no *proof* that astral influence effected the atmospheric derangement, we can fairly suppose that the planets in their movements may perform the office of pointers on the face of the great celestial clock, and indicate the times of telluric changes. Their movements may not be the cause, *but they may be isochronous with the cause.*

Medical writers, following Hippocrates,

* As my anonymous "friend" asserts that this conjunction was never known to occur without being followed by the results described, perhaps he will favour me (*in proof of his assertion*) with the dates of previous conjunctions, and their consequences, drawn up in a tabular form. And this he ought to be able to do, having, as he says, devoted many years to the study of astrology.

have generally connected the unusual prevalence of epidemics with a peculiar constitution of the atmosphere, but without any special reference to the cause of that peculiar constitution. Numerous writers on epidemics in general, and in monographs, as on the cholera, influenza, &c., have, however, attempted to trace a connection between earthquakes and volcanic eruptions and epidemic diseases. The facts are too numerous, and the literature is too extensive, to be collated here, but the English reader will find much information on the subject in a series of articles published by the Rev. W. B. Clarke, in vols. vi., vii., and viii. of the "Magazine of Natural History" (On certain Recent Phenomena, Vicissitudes in the Seasons, and Prevalent Disorders Contemporaneous and in supposed Connection with Volcanic Emanations), and which contain an account of most of the telluric and atmospheric changes up to 1833, detailed by Hecker, Schön, Geigel, and others, as accompanying the cholera in its progress through the world. Mr. Clarke thinks it quite certain that there is a positive periodicity in the derangement of the earth and atmosphere. So far as regards the measure of the periods of recurrence, he concludes, from the numerous facts he has collected, "that there is an extraordinary concurrence in all cases of *great* terrestrial and atmospheric derangement with the multiples of a period of 16 or 17 years (the sum of whose digits is 33), and which periods, calculated backwards, from the year 1833, will be found, with fixed allowance, occasionally, of from 5 to 6 years, to comprehend almost every phenomenon of the kind on record." Mr. Clarke illustrates this law by a reference to numerous ancient and modern dates of earthquakes, famine, and pestilence, the extraordinary irruptions of mice and of locusts, aphides, and other insects, and leaves no doubt on the mind of his reader as to the truth of his views in general. But for want of a clear method his numerous facts are not so convincing as they ought to be; there is too little precision in the dates, and a too evident wish to accommodate the latter to theory: they want, too, a comparison and connection with astronomical phenomena. Mr. Howard's known cycle of 18 years is much more clearly demonstrated. Mr. Clarke would do well if he were to re-arrange his facts with reference to it. For example, according to Mr. Clarke, the years 1347-8 and 1833 are two epochs, both remarkably distinguished for earthquakes, meteors, and other meteorological phenomena, for a widely-spread and devastating pestilence, and for extraordinary changes in animated nature; now, the interval between these two epochs comprises exactly 27 of Mr. Howard's lunar cycles. Mr. Howard digested the barometrical observations made at the apartments of the Royal Society, and found that the barometric

mean is depressed, on an average of years, by the moon's position in south declination. This depression is gradual, and commences with the moon in full north declination. The effects of this influence pass through a cycle of 18 years. The mean weight of the atmosphere increases through the fore part of this period, and having kept for a year at the maximum thus obtained, decreases through the remaining years to a minimum, about which there is some fluctuation before the mean begins to rise again. (Phil. Trans., 1841, p. 280.) If allowance be made for the 2 years of stationary maximum and uncertain minimum, this cycle is so strikingly corroborative of the views of Mr. Clarke that the coincidence cannot be considered accidental. The revolution of the lunar nodes and apogee takes place within this cycle of 18 years, and Toaldo thought the half of it, or nine years, would explain the recurrence of plagues, epidemics, &c. There are isolated facts which certainly point to a cycle of 17 or 18 years. Locusts are said to appear in America every 17 years,—so, also, the cicada septemdecem punctata in England. (Fam. Lib., vol. li.) The small-pox observes a similar cycle in New Spain. "Small-pox," writes Humboldt and Bonpland, "introduced in 1520, commits its ravages only every 17 or 18 years. In equinoctial countries it seems to have regular periods of recurrence, like the black vomit, and several other diseases; for, although frequently introduced by shipping from Europe, it does not become epidemic but at well-marked intervals," &c.

The facts and inferences just stated leave little doubt that this lunar cycle is one of the periods to be observed. The moon, as I have already shown, has an influence on the earth's atmosphere, and through this influence will, undoubtedly, give a character to its medical constitution. The influence of the sun on the earth's magnetic and electric tension ought not, however, to be forgotten; for it is in this direction we must look for the exciting cause of volcanic eruptions, earthquakes, meteors, hurricanes, &c., and through these for the remote cause of widely-spreading and destructive pestilences, occurring at longer periods. The prevalence of an epidemic will, also, be limited or not, according to the number of a population which it can influence. It has been observed, for example, that scarlatina prevails every 3 or 4 years only, because one attack is prophylactic against a second, so that another growth of children must rise up after it has once prevailed extensively, before it can reappear. So, also, the minor lunar periods, and those of a larger cycle, may operate on human affairs. Mr. Alison observes that the ravages of the Tartars in India and Persia have occurred at nearly equally distant periods in all ages, from the earliest history of the world. (Principles of Population,

vol. i., p. 401.) It is manifest that famine and pestilence might be the immediate determinators of these periods, the famine and pestilence being induced by telluric mutations, and the latter by periodic sol-lunar influences. But in tracing the true laws of periodicity, how many complexities are to be unravelled, how many causes of error to be avoided!

And yet such is the multitude of observers, and the increased powers of observation afforded by modern science, that there seems every reason to hope that the laws of recurrence of natural phenomena will ultimately be clearly developed. In this case, as in others which I have discussed, the abandonment of vague generalisations, and the adoption of a maintained, systematic, and well-digested series of observations, are alone necessary to attain the desired end. Manifestly, the mortuary registers present the means of determining the cycles of epidemics, in England at least. The periodic migration, or extraordinary appearance at intervals of years of animals, especially of fishes and insects, must be carefully noted in detail. Agriculture, astronomy, meteorology, geology, and terrestrial magnetism, must supply their quotas of observations; and an induction, with special reference to latitude, the longitude, and the magnetic meridians, must be made from time to time from the whole series. There cannot be a doubt that in a few years such a clue would be obtained by this plan as would render subsequent researches comparatively easy and certain.

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CASE OF COMPLICATED INTUSSUSCEPTION IN AN INFANT.

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To the Editor of THE LANCET.

SIR,—The following case was attended with such marked symptoms during life, and presented appearances after death so unequivocal, that I think it will be deemed interesting by the readers of THE LANCET:—

The subject of it was a fine-grown male infant, aged twenty months, previously healthy from his birth. Nov. 17th, at eleven, a.m., the child was seized with a sudden pain in the belly, which became so severe as to induce convulsions. When I visited him, two or three hours later, he was still writhing about in evident pain; and although in a state of consciousness, he seemed quite indifferent to objects about him, and lay with the eyes half closed. There was no tenderness nor tumour to be discovered in any part of the abdomen, the pulse was not excited, and the skin was quite natural. The bowels