number of papers, by various writers, nave been reprinted with additional remarks on the subject, in Sourindro Mohun Tagore’s *Hindu Music* (Calcutta, 1875). Compare also Bh. A. Pingle, *Indian Music,* 2nd ed. (Bombay 1898*).\_*

VII. Rhetoric *(Alankära-sästra).—*Treatises on the theory of literary composition are very numerous. Indeed, a subject of this description—involving such nice distinctions as regards the various kinds of poetic composition, the particular subjects and characters adapted for them, and the different scntiments or mental conditions capable of being both depictured and called forth by them—could not but be congenial to the Indian mind. H. H. Wilson, in his *Theatre of the Hindus,* has given a detailed account of these theoretic distinctions with special reference to the drama, which, as the most perfect and varied kind of poetic production, usually takes an important place in the theory of literary composition. The *Bharata-éãstra* has already been alluded to as probably the oldest extant work in this department of literature. Another comparatively ancient treatise is the *Kãvyãdarsa@@*1 or "mirror of poetry,” in three chapters, by Dandin, the author of the novel *Dasakumäracharita,* who probably flourished towards the end of the 6th century. The work consists of three chapters, treating— (I) of two different local styles *(riti)* of poetry, the Gaudi or eastern and the Vaîdarbhï or southern (to which later critics add four others, the Pãñchãlï, Mãgadhï, Lãtï, and Ãvantikã) ; (2) of the graces and ornaments of style, as tropes, figures, similes; (3) of alliteration, literary puzzles and twelve kinds of faults to be avoided in composing poems. Another treatise on rhetoric, in Sutras, with a commentary entitled *Kavyalαnkarα-υrJtti,@@*2 is ascribed to Vãmana of probably the 8th century. The *Kαυycdankara,* by the Kashmirian Rudrata, was probably composed in the 9th century, a gloss on it (by Nami), which professes to be based on older commentaries, having been written in 1068. Dhananiaya, the author of the *Dasa- rüpa*,@@3 or “ ten forms (of plays)," the favourite compendium of dramaturgy, appears to have flourished in the 10th century. In the concluding stanza he is stated to have composed his work at the court of King Muñja, who is probably identical with the well- known Malava prince, the uncle and predecessor of King Bhoja of Dhãrã. The Dasarupa was early commented upon by Dhanika, possibly the author’s own brother, their father’s name being the same (Vishnu). Dhanika quotes Rãjasekhara, who is supposed to have flourished about a.d. 1000,@@4 but may after all have to be put somewhat earlier. The *Sarasvati-kanthäbharana,* “ the neck-ornament of Sarasvatï (the goddess of eloquence),” a treatise, in five chapters, on poetics generally, remarkable for its wealth oof quotations, is ascribed to King Bhoja himself (11th century), probably as a compliment by some writer patronized by him. The *Kaυya-prakasa*,@@5“ the lustre of poetry,” another esteemed work of the same class, in ten sections, was probably composed in the 12th century—the author, Mammata, a Kashmirian, having been the maternal uncle of Srì-Harsha, the author of the Naishadhïya. The *Sähitya-darparia@@*6or “ mirror of composition,” the standard work on literary criticism, was composed in the 15th century, on the banks of the Brahmaputra, by Visvanãtha Kavirâja. The work consists of ten chapters, treating of the following subjects:—(1) the nature of poetry; (2) the sentence; (3) poetic flavour *(rasa);* (4) the divisions of poetry; (5) the func­tions of literary suggestion; (6) visible and audible poetry (chiefly on dramatic art); (7) faults of style; (8) merits of style; (9) distinction of styles; (10) ornaments of style.

VIII. Medicine *(Äyur·veda, Vaidyα-sastrα).—*Though the early cultivation of the healing art is amply attested by frequent allusions in the Vedic writings, it was doubtless not till a much later period that the medical practice advanced beyond a certain degree of empirical skill and pharmaceutic routine. From the simultaneous mention of the three humours (wind, bile, phlegm) in a vãrttika to Panini (v. 1, 38), some kind of humoral pathology would, however, seem to have been prevalent among Indian physicians several centuries before our era. The oldest existing work is supposed to be the *Charaka-samhitä*,@@7 a bulky cyclo­paedia in slokas, mixed with prose sections, which consists of eight chapters, and was probably composed for the most part in the early centuries of our era. Whether the Chinese tradition which makes Charaka the court physician of King Kanishka (c. a.d. 100) rests on fact is very doubtful. Of equal authority, but doubtless some­what more modern, is the *Susruta (-samhitä),@@*8 which Susruta is said to have received from Dhanvantari, the Indian Aesculapius, whose name, however, appears also among the “ nine gems.” It consists

of six chapters, and is likewise composed in mixed verse and prose— the greater simplicity of arrangement, as well as some slight attention paid in it to surgery, betokening an advance upon Charaka. Both works are, however, characterized by great prolixity, and contain much matter which has little connexion with medicine. The late Professor E. Haas, in two very suggestive papers,@@9 tried to show that the work of Susruta (identified by him with Socrates, so often confounded in the middle ages with Hippocrates) was probably not composed till after the Mohammedan conquest, and that, so far from the Arabs (as they themselves declare) having derived some of their knowledge of medical science from Indian authorities, the Indian Vaidyasastra was nothing but a poor copy of Greek medicine, as transmitted by the Arabs. But even though Greek influence may be traced in this as in other branches of Indian science, there can be no doubt,@@10 at any rate, that both Charaka and Susruta were known to the Arab Rãzï *(c.* a.d. 932), and to the author of the Fihrist (completed **A.D.** 987), and that their works must therefore have existed, in some form or other, at least as early as the 9th century. Among the numerous later medical works published and greatly esteemed in lndia, the most important general compendiums are Vãgbhata’s *Ashtanga-hridayα, "*the heart of the eight-limbed (body of medical science),” supposed to have been written in the 9th century, or still earlier; and Bhãva Misra's *Bhaυa-prakdiα,* probably of the early part of the 16th century; while of special treatises may be mentioned Mãdhava’s system of pathology, the *Rugvinischaya,* or *Mädhava-Nidãna,* of the 8th or 9th century; and Sarngadhara’s compendium of therapeutics, the *Sãrngadhara- samhitä,* composed before 1300, having been commented upon by Vopadeva. Materia medica, with which India is so lavishly en- dowed by nature, is a favourite subject with Hindu medical writers, the oldest treatise being apparently the *Dhanvantari-nighantu,* of uncertain, but not very high, age; besides which may be mentioned Madanapãla’s *Madanaυinοda,* written **A.D.** 1374; the more modern *Raja-nighantu,* by the Kashmirian Narahari; besides other, still more recent esteemed works of this class, to which may be added the valuable medical dictionary *Vaidyakasabdasindhu* by Umesa- chandra Gupta. A useful general view of this branch of Indian science is contained in T. A. Wise’s *Commentary on Hindu Medicine* (1845), and in his *History of Medicine,* vol. i. (1867); but the subject has since then been treated in a much fuller and more critical way in Professor J. Jolly’s “ Medicin ” in Bühler’s *Grundriss der indο- arischen Philologie,*

IX. Astronomy and Mathematics.—Hindu astronomy may be broadly divided into a pre-scientific and a scientific period. While the latter clearly presupposes a knowledge of the researches of Hipparchus and other Greek astronomers, it is still doubtful whether the earlier astronomical and astrological theories of Indian writers were entirely of home growth or partly derived from foreign sources.

From very ancient (probably Indo-European) times chronological calculations were based on the synodical revolutions of the moon—the difference between twelve such revolutions (making together 354 days) and the solar year being adjusted by the insertion, at the time of the winter solstice, of twelve additional days. Besides this primitive mode the Rigveda also alludes to the method prevalent in post-Vedic times, according to which the year is divided into twelve *(sãvana* or solar) months of thirty days, with a thirteenth month intercalated every fifth year. This quinquennial cycle (*yuga*), is explained in the *Jyοtisha,* regarded as the oldest astro­nomical treatise. An institution which occupies an important part in those early speculations is the theory of the so-called lunar zodiac, or system of lunar mansions, by which the planetary path, in accordance with the duration of the moon’s rotation, is divided into twenty-seven or twenty-eight different stations, named after certain constellations *(nαkshatra)* which are found alongside of the ecliptic, and with which the moon (masc.) was supposed to dwell successively during his circuit. The same institution is found in China and Arabia; but it is still doubtful@@11 whether the Hindus, as some scholars hold, or the Chaldaeans, as Professor Weber thinks, are to be credited with the invention of this theory. Professor G. Thibaut,@@12 who has again thoroughly investigated the problem, comes to the conclusion that it is improbable that the nakshatra-theory arose independently in India, but that it is still doubtful whence the Hindus derived it. The principal works of this period are hitherto known from quotations only, viz. the Gargi *Samhitä,* which Professor Kern would fix at *c.* 50 B.c., the *Näradi Samhitä* and others.

The new era, which the same scholar dates from *c.* a.d. 250, is marked by the appearance of the five original Siddhãntas (partly extant in revised redactions and **in** quotations), the very names of two of which suggest Western influence, viz. the *Paitämaha-, Suryα-,@@*13 *Vasishtha-, Romaka- (i.e.* Roman) and *Paulisa-siddhãntas.* Based

@@@1 Edited, with commentary, by Premachandra Tarkabagisa, *Bibl. Ind.* ; with German translation by O. v. Böhtlingk (1890).

@@@2 Edited by Capeller (1875).

@@@3 Edited by Fitzedw. Hall, *Bibl. Ind.* (1865); with commentary (Bombay, 1897).

@@@4 R. Pischel, *Gött. Gel. A*. (1883); G. Bühler, *Ind. Ant.* (1884), p. 29.

@@@5 Edited by Mahesa Chandra Nyãyaratna (1866).

@@@6 Text and translation in *Βibl. Ind*.; edited by Jibananda Vidya-

sagara (1897).

@@@7 Edited by Jibananda Vîdyasagara (Calcutta, 1877). Cf. A. F. R. Hoernle, "Studies in Anc. Indian Medicine ” (7. *Roy. As. 5.* 1906-9).

@@@8 Edited by Madhusudana Gupta (1835-1837), and by Jibananda Vidyasagara (1873).

@@@9 *Z.D.M.G.* (1876), p. 617 seq.; (1877), p. 647 seq.

@@@10 See Professor Aug. Müller’s paper, *Z.D.M.G.* (1880), p. 465.

@@@11 See especially Professor Whitney’s essay on the Lunar Zodiac, in his *Oriental and Linguistic Studies.*

@@@12 G. Thibaut, “Astronomie, Astrologie und Mathematik,” **in** Bühler’s *Grundriss.*

@@@13 The *Surya-siddhänta,* translated by (W. D. Whitney and) E. Burgess (1860).