which he has erected at Cambridge (Eng.) and applied to an investi­gation of the change of latitude and a determination of the constant of refraction. A description of the instrument, and some preliminary results obtained by it, is given by him *(Monthly Notices R.A.S.,* lxi. 314)∙ [D. G1.]

**TELESIA** [mod. Telese], a town of the Samnites, 24 m. N.W. from Beneventum. It possesses remains of walls in *opus reticulatum,* of a total length of over a mile; two inscriptions of the Republican period record the erection of towers. The remains of baths *(Thermae Sabinianae)* and of an amphitheatre still exist: and the city was supplied with water by an aqueduct. There are sulphur springs in the vicinity, which may have sup­plied the baths.

**TELESILLA,** Greek poetess, a native of Argos, one of the so-called nine lyric muses. According to the traditional story, when Cleomenes, king of Sparta, invaded the land of the Argives in 510 b.c., and slew all the males capable of bearing arms, Telesilla, dressed in men’s clothes, put herself at the head of the women and repelled an attack upon the city of Argos. To commemorate this exploit, a statue of the poetess, in the act of putting on a helmet, with books lying at her feet, was set up in the temple of Aphrodite at Argos. The festival *Hybristica* or *Endymatia,* in which men and women exchanged clothes, also celebrated the heroism of her female compatriots. Herodotus (vi. 76) does not refer to the intervention of Tele­silla, but mentions an oracle which predicted that the female should conquer the male, whence the tradition itself may have been derived. Further, the statue seen by Pausanias may not have been intended for Telesilla; it would equally represent Aphrodite, in her character as wife of Ares and a warlike god­dess (the books, however, seem out of place). The *Hybristica,* again, was most probably a religious festival connected with the worship of some androgynous divinity. Of Telesilla’s poems only two lines remain, quoted by the grammarian Hephaestion, apparently from a Parthenion, or song for a chorus of maidens.

See Pausanias ii. 20, 8; Plutarch, *De Virtut. Mulierum,* 8; Clement of Alexandria, *Stromata,* iv. 19, p. 522; Bcrgk, *Poetae Lyrici Graeci,* iii. ; and especially Macan, *Herodotus iv.-vi.,i.* 336 foll. and notes.

**TELESIO, BERNARDINO** (1509-1588), Italian philosopher and natural scientist, was born of noble parentage at Cosenza near Naples in 1509. He was educated at Milan by his uncle, Antonio, himself a scholar and a poet of eminence, and after­wards at Rome and Padua. His studies included all the wide range of subjects, classics, science and philosophy, which con­stituted the curriculum of the Renaissance savants. Thus equipped, he began his attack upon the medieval Aristotelianism which then flourished in Padua and Bologna. Resigning to his brother the archbishopric of Cosenza, offered to him by Pope Pius IV., he began to lecture at Naples and finally founded the academy of Cosenza. In 1563, or perhaps two years later, appeared his great work *De Rerum Natura,* which was followed by a large number of scientific and philosophical works of sub­sidiary importance. The heterodox views which he maintained aroused the anger of the Church on behalf of its cherished Aristotelianism, and a short time after his death his books were placed on the Index.

Telesio was the head of the great South Italian movement which protested against the accepted authority of abstract reason, and sowed the seeds from which sprang the scientific methods of Campanella and Bruno, of Bacon and Descartes, with their widely divergent results. He, therefore, abandoned the purely intellectual sphere and proposed an inquiry into the data given by the senses, from which he held that all true knowledge really comes. Instead of postulating matter and form, he bases existence on matter and force. This force has two opposing elements: heat, which expands, and cold, which contracts. These two processes account for all the diverse forms and types of existence, while the mass on which the force operates remains the same. The harmony of the whole con­sists in this, that each separate thing develops in and for itself in accordance with its own nature while at the same time its motion benefits the rest. The obvious defects of this theory, (1) that the senses alone cannot apprehend matter itself, (2) that it is not clear how the multiplicity of phenomena could result from these two forces, and (3) that he adduced no evidence to substantiate the existence of these two forces, were pointed out at the time by his pupil, Patrizzi (sec article on Patrizzi, Francesco). Moreover his theory of the cold earth at rest and the hot sun in motion was doomed to disproof at the hands of Copernicus. At the same time, the theory was sufficiently coherent to make a great impression on Italian thought. When Telesio went on to explain the relation of mind and matter, he was still more heterodox. Material forces are, by hypothesis, capable of feeling; matter also must have been from the first endowed with consciousness. For consciousness exists, and could not have been developed out of nothing. Again, the. soul is influenced by material conditions; consequently the soul must have a material existence. He further held that all knowledge is sensation ("non ratione sed sensu ”) and that intelli­gence is, therefore, an agglomeration of isolated data, given by the senses. He does not, however, succeed in explaining how the senses alone can perceive difference and identity. At the end of his scheme, probably in deference to theological prejudices, he added an element which was utterly alien, namely, a higher impulse, a soul superim­posed by God, in virtue of which we strive beyond the world of sense. The whole system of Telesio shows lacunae in argument, and ignorance of essential facts, but at the same time it is a fore­runner of all subsequent empiricism, scientific and philosophical, and marks clearly the period of transition from authority and reason to experiment and individual responsibility. Beside the *De Rerum Natura,* he wrote *De Somno, De his quae in acre fiunt, De Mari, De Cometis et Circule Lacteo, De usu respirations, &c.*

**TELESPHORUS,** bishop of Rome from about 126 till about 137. St Irenaeus says that he suffered martyrdom.

**TELFORD, THOMAS** (r757-1834), British civil engineer, was the son of a shepherd, and was boni at Westerkirk in Eskdale, Dumfriesshire, on the 9th of August 1757. From early childhood he was employed as a herd, occasionally attend­ing the parish school of Westerkirk, where his quickness and diligence helped to make up for his lack of opportunity. On being apprenticed, at the age of fifteen, to a stonemason at Langholm, he found leisure not only to gain an acquaintance with Latin, French and German, but to gratify his literary tastes by a wide variety of reading. In his early manhood he was much given to the writing of verse: a poem of some length on Eskdale appeared in 1784 in the *Poetical Museum,* published at Hawick; under the signature of “Eskdale Tam” he con­tributed verses to Ruddiman’s *Weekly Magazine;* and he addressed an epistle in rhyme to Bums, which was published in James Currie’s *Life* of the poet. In 1780 Telford went to Edinburgh, where he was employed in the erection of houses in the “ new ” town, and occupied much of his spare time in learning architectural drawing. Proceeding to London two years later, he found employment in the erection of Somerset House. Having in 1784 superintended the erection of a house for the commissioner at Portsmouth dockyard, he next repaired the castle of Sir W. Pulteney, member for Shrewsbury, who conceived such a high opinion of his talents that he got him made surveyor of public works for the county of Salop. In 1793 he was appointed engineer of the Ellesmere canal, for which he built the Chirk and Pont-y-Cysyllte aqueducts, and this work established his reputation as a canal engineer. He was consulted in 1806 by the king of Sweden regarding the construction of the Göta Canal, and, his plans having been adopted, he visited the country in 1810 to superintend some of the more important excavations. In the early years of the 19th century the question of improving the communications in the Highlands of Scotland engaged the attention of the government, and Telford was commissioned to report on the matter. In consequence of his recommendations, he was appointed engineer for the Caledonian Canal, which was begun in 1804 and forms one of the largest but by no means the most useful of his undertakings, and also for the construction of 920 miles of roads, a great part through very difficult country. Of the numerous bridges built in this line of roads mention may be specially made of that across the Tay at Dunkeld. Subsequently he was employed on the improvement of the road between Carlisle and Glasgow, which was undertaken as a result of a parliamentary inquiry in 1814, and he was then entrusted with the execution of another scheme, of equal magnitude and importance with that in the Highlands of Scot­land, for a system of roads through the more inaccessible parts of Wales, which involved the erection of the magnificent