

printed in 1165-1174. It contains a representation of an armillary sphere, which appears to me to be much the same as the sphere in question. There is a solid horizon fixed to a graduated outer circle. Inside the latter is a meridian circle, at right angles to which is a graduated colure; then the equator, apparently a double ring, and the ecliptic; also two diametric bars. The cut is rudely executed, but it certainly shows that some one imagined something more perfect. The instrument stands on a cross frame, with 4 dragon supporters and a prop in the centre.*

"It should be remembered that under the Mongol Dynasty the Chinese had much intercourse with Central Asia; and among others Yelewchootsae, as confidential minister and astronomer, followed Chinghiz in his Western campaign, held intercourse with the astronomers of Samarkand, and on his return laid some astronomical inventions before the Emperor.

"I append a notice of the Observatory taken from a popular description of Peking, by which it will be seen that the construction of these instruments is attributed to Ko Show-king, one of the most renowned astronomers of China. He was the chief astronomer under Kúblái Kaan" [to whom he was presented in 1262; he was born in 1231.—H. C.]

"It must be remembered that there was a special vitality among the Chinese under the Yuen with regard to the arts and sciences, and the Emperor had the choice of artizans and men of science from all countries. From the age of the Yuen till the arrival of the Jesuits, we hear nothing of any new instruments having been made; and it is well known that astronomy was never in a lower condition than under the Ming."†

Mr. Wylie then draws attention to the account given by Trigault of the instruments that Matteo Ricci saw at Nanking, when he went (in the year 1599) to pay a visit to some of the *literati* of that city. He transcribes the account from the French *Hist. de l'Expédition Chrestienne en la Chine*, 1618. But as I have the Latin, which is the original and is more lucid, by me, I will translate from that.‡

"Not only at Peking, but in this capital also (Nanking) there is a College of Chinese Mathematicians, and this one certainly is more distinguished by the vastness of its buildings than by the skill of its professors. They have little talent and less learning, and do nothing beyond the preparation of the almanacs on the rules of calculation made by the ancients; and when it chances that events do not agree with their calculation they assert that what they had calculated was the regular course of things, but that the aberrant conduct of the stars was a prognostic from heaven of something going to happen on the earth. This something they make out according to their fancy, and so spread a veil over their own blunders. These gentlemen did not much trust Father Matteo, fearing, no doubt, lest he should put them to shame; but when at last they were freed from this apprehension they came and amicably visited the Father in hope of learning something from him. And when he went to return their visit he saw something that really was new and beyond his expectation.

"There is a high hill at one side of the city, but still within the walls. On the top of the hill there is an ample terrace, capitably adapted for astronomical observation, and surrounded by magnificent buildings which form the residence of the Professors. . . . On this terrace are to be seen astronomical instruments of cast-metal, well worthy of inspection whether for size or for beauty; *and we certainly have never seen or read of anything in Europe like them.* For nearly 250 years they have stood thus

* This ancient instrument is probably the same that is engraved in Pauthier's *Chine Ancienne* under the title of "The Sphere of the Emperor Shun" (B.C. 2255!).

† After the death of Kúblái astronomy fell into neglect, and when Hongwu, the first Ming sovereign, took the throne (1368) the subject was almost forgotten. Nor was there any revival till the time of Ching. The latter was a prince who in 1573 associated himself with the astronomer Hing-yun-lu to reform the state of astronomy. (*Gaubil.*)

What Ricci has recorded (in Trigautius) of the dense ignorance of the Chinese *literati* in astronomical matters is entirely consistent with the preceding statements.

‡ I had entirely forgotten to look at Trigault till Mr. Wylie sent me the extract. The copy I use (*De Christianâ Expeditione apud Sinas . . . Auct. Nicolao Trigautio*) is of *Lugdun.* 1616. The first edition was published at *August. Vindellicorum* (Augsburg) in 1615; the French, at Lyons, in 1616.