SYSTEMS OF ASTRONOMY.

Of all the sciences, Astronomy, probably, has a history the most interesting. This history was the subject of the Saturday lecture of Professor Baker, and the lecturer, in the short time given, succeeded in presenting to his hearers a comprehensive view of the growth of astronomical science from its beginnings in the unscientific fancies of early observers down to the great triumph of Newton. The Professor had prepared a number of very fine drawings and, with their aid, explained away all the difficulties of the different systems, the mysteries of the epicycles, eccentrics and ellipses. Popular the lecture was, only in the sense of being interesting, well arranged and lucidly presented; the scientific object was never for a moment forgotten.

This scientific object is best stated in the lecturer's own words: "To sketch the successive steps by which man advanced from his primitive conception of the cosmos, or system of the universe, to the theory at present held; especially to point out how naturally, and necessarily, almost, the advance from one step to the next in this process of scientific evolution was made until the truth was finally attained." To this end it was shown how man, starting from the thought that he was the centre of all things, passed to the theory of a universe with the earth as centre, the sun, moon, planets and stars all being attendant spheres to it; and thence to the theory of the sun as centre of our local system, itself being "but one of the countless millions of stars that throng the infinite depths of space." It was shown how each system or theory, while offering an explanation or partial explanation of phenomena, involved itself in ruin, at the same time leading up to and furnishing material as a basis for the succeeding theory; how each age became absorbed in special inquiry and developed a genius to be its exponent; and how finally the present test-defying theory is but the natural fruition of the centuries of questioning and investigation. Thus the great facts in the history of Astronomy are not mere isolated accidents; rather incidents in a continuous development, events in the stately march of cause and effect.

First the established explanation of celestial phenomena was given. It was shown that a motion of the earth—a sphere—on its axis, combined with a motion of the earth and the planets in elliptic orbits about the sun, accounts for all the varying appearances of the heavens—not only those that are noticed by every one, as the daily motion of the sun and stars, the motion of the sun from day to day from east to west across the "starry background," the forward and backward motions of the planets among the stars, the remarkable phases of the moon, but also those changes rendered noticeable only by the most refined instruments.

Quoting from the Odyssey, the lecturer showed how the early Greeks explained these motions. The constellations and the sun moved from east to west, and sailed round on the river Oceanus, by the north—a conjecture which may have been confirmed by the appearance of the summer sun in northern latitudes or by the aurora. The earliest explanation worthy of being called a theory supposed the stars fixed on crystalline spheres. But this did not account for the motions of the sun and the planets among the stars. Hence a multiplication of spheres, giving the Pythagorean system of twelve spheres. This theory received its final elaboration from Eudoxus of Cindos (second century B.C.), who gave to the sun and the moon each three spheres and to the planets each four. But closer observation revealed motions and variations not yet explained and there grew up the theory of epicycles and eccentrics. This system, known as the Ptolemaic, was propounded by Apollonius of Alexandria, and developed by Hipparchus (to whose genius an eloquent tribute was paid) and Ptolemy (second century after Christ).

The Ptolemaic continued to reign until the sixteenth century, when Copernicus dissatisfied with the complexities of the received theory was led to explain all the difficulties by considering the sun as the centre of our system, around it revolving the earth and the other planets. But he retained somewhat of the old system an error to be corrected by Tycho Brahe. The telescope had now been invented and progress was rapid. Brahe tabulated and collected results of his observations which his pupil and follower, Kepler, used to good purpose in arriving at what are known as Kepler's Laws. These in turn became material for the genius of Newton, and we have the Law of Gravitation.

We cannot close this imperfect sketch of the lecture without expressing a wish that next year the single lecture on Astronomy may grow into an extended course.

SCHOOL OF SCIENCE.

There was a goodly attendance at the meeting of the Engineering Society, on Tuesday last. Among those present were a number of graduates, as well as several of the faculty. The main feature of the programme was a paper on "Sewage Disposal," read by Mr. H. J. Chewett, '88. The paper was a thorough and unique discussion of the subject from practical, theoretical and historical standpoints, and though the subject is one upon which much has been written and said, Mr. Chewett introduced many new ideas, and considered old problems in new phases, in a way to be appreciated by those present. All the systems of disposal at present in use were commented upon, including the sewage farm, the electrical, chemical, and filtration methods; and after taking the merits of each under discussion the writer showed that the last was found to be the most serviceable system. From an historical standpoint the subject was treated in an exhaustive manner, the development of the sewage question being traced from ancient Greece and Rome, through medieval London, down to the present practical age.

Another week sees the much-talked-of "Opening" close at hand. The invitations have been out for a week or more, and a commonly heard question about University circles is, "Are you going to the School of Science Opening?" Everyone concerned is doing his best to make the event a success, and the present indications are that an enjoyable evening will be spent, especially by those who have a tendency toward the scientific. As this will be somewhat after the nature of the old conversat, it is hoped that it will in a small measure replace that event, though the management of the latter was in the hands of the students. There is a degree of disappointment among the engineers because that, owing to the nature of the event, they have been unable to arrange for such a reception at S.P.S. as they would desire to give their friends. The "Opening" is not a students' affair but is official, and consequently it is not to be looked on as would be a reception by the undergrads.

We are glad to hear of the success of Mr. W. L. Innes, '90, who has recently been promoted to the position of chief engineer of the C.P.R. roads between London and Detroit.

THE GRADUATING PHOTO.

A large number of sittings for the Graduating Photo of the Class of '92 has been taken by Mr. J. Fraser Bryce, 107 King Street West. There are still some members of the Class who have not yet called on Mr. Bryce. They are reques ed to do so without delay as the sittings will close about the first of March.

GEO. E. MCCRANEY, *Secretary*.

Out of 501 students at Johns Hopkins, 295 are pursuing courses as graduates.