a commission from the Iron and Steel Institute to visit the United States and report on the chemistry of the Danks rotary puddling furnace. His report, which was published in V. 1 of the *Journal* of the Institute, proved of the utmost value. On his return from this commission, in 1872, he was appointed Works Manager of West Cumberland Iron and Steel Co., Workington, of which he later became General Manager and remained as such till 1900.

His Contributions

His chief contribution to metallurgy was in the invention of a process for completely eliminating phosphorus from molten pig iron by oxidation. He got this idea during his investigation in the United States. Having found by experiment that lime could be burned at a high temperature so as to be impervious to water, he conceived the idea of lining the Bessemer converter with lime so over-burnt and thus eliminating phosphorus during the Bessemer process. He succeeded in almost entirely eliminating phosphorus from 3 to 4 ton charges of molten phosphoric pig iron and took a patent. But the process did not become a commercial success till 1879, when Sidney Thomas and Percy Gilchrist perfected it.

Another conspicuous contribution of Snelus to metallurgical chemistry was his proof of the practical value of the molybdate method for the determination of phosphorus in steel, a process which is now universally employed.

He wrote about twelve papers, all of which were published in the *Proceedings* of the Iron and Steel Institute.

His Honours

He was a Foundation Member of the Iron and Steel Institute and its Vice-President from 1889 to the time of his death. He was awarded the Bessemer Medal of the Institute jointly with Thomas in 1883. He was also awarded gold medals for his inventions at the "Inventions Exhibition" in 1885, and at the "Paris Exhibition" in 1878 and a silver medal at the "Paris Exhibition" of 1900. He was made a Fellow of the Royal Society in 1887. He was also an enthusiastic member of the volunteer force from 1859 till 1891, when he received several military honours. He died on June 18, 1906, aged sixty-nine.

ASTRONOMICAL NOTES.

1. Planets during July 1937.—Venus will continue to be a morning star throughout the month and on July 16, it will closely approach Aldebaran, the planet being $2\frac{1}{2}°$ North of the Star. Mars will resume its eastward motion and although getting fainter, will be a conspicuous object in the evening sky, crossing the meridian about an hour after sunset. On July 17, the Moon occults Mars ; the actual occultation will not be visible from any place in India, but the close approach at the time of the setting of the Moon will be worth observing. Jupiter will be in opposition to the Sun on July 15, while Saturn rising about an hour after midnight will be nearly overhead early in the morning, its stellar magnitude on July 16 will be 1·0. Uranus will be about midway in the sky between Saturn and Venus and can be picked up with a binocular.

2. Comets.—Whipple's comet (1937 *b*) is still bright and will pass perihelion on June 20. It is a fairly easy object of about the ninth magnitude in the constellation Bòotes. It is slowly moving in a south-easterly direction and can be seen readily with a small telescope. Comet Grigg-Skjellerup was detected by Mr. L. E. Cunningham of the Harvard Observatory on April 30. At the time of observation, it was a faint object magnitude 13 and its approximate position was R.A. 6 *h.* 59 *m.*, and Decl. 7°53′ *N.* The comet passed perihelion on May 23. It is a periodic comet with a period of 5·0216 years and this is the fifth observed apparition since its discovery in 1922.

3. New Stars.—Nova Herculis (1934) is steady at about magnitude 8·5 with only some small fluctuations in brightness, ranging about half a magnitude. Nova Lacertæ (1936) is slowly declining, its magnitude on June 5 was 10·70. Of the two novæ in Aquilæ discovered by Tamm last year, the first does not show much variation in brightness, but the second nova is definitely fading having declined to the 12th magnitude on June 8.
