2. Turn the globe till ſome other point of the Ecliptic comes under 18° as before, and you will find it about 5° of ♒, which anſwers to the 24th of January, the beginning of twilight to the inhabitants at the North Pole, and then on March the 21ſt he riſes with them.

Thus it appears, that the length of their day (from ſun-riſing to ſun-ſetting) is from March the 21ſt to September the 21ſt. The length or continuance of twilight, is from September the 21ſt to November the 14th, and from January the 24th to March the 21ſt, in all about one hundred and ten days, and their real night is from November the 14th to January the 24th, viz. about ſeventy-one days.

Note, The ſame holds good to the ſouthern inhabitants at the South Pole, for he riſes with them when he enters to ♎, and ſets with them when he comes to ♈, &c.

PROBLEMS *on the* CELESTIAL GLOBE.

PROB. I.

To find the right Aſcenſion of any Star.

Bring the center of the ſtar to the Meridian, and the degree of the Equinoctial, cut by the Meridian, is the right aſcenſion required.

Thus you will find the right aſcenſion of Aldebaran in Taurus to be about 65°, Arcturus in Bootes about 210° 45′, Regel in Orion about 75° 30′, and Sirius, or the Dog-Star, about 98°, &c. &c.

PROB. II.

The Latitude given, to tell the oblique Aſcenſion and Deſcenſion of any Star.

Rectify the globe, and bring the ſtar down to the eaſtern verge of the Horizon, and the degree of the Equinoctial that is then cut by the Horizon, is the oblique aſcenſion required. Turn the ſtar to the weſtern ſide, and the degree of the Equinoctial, cut by the Horizon, is the ſtar's oblique deſcenſion.

Proceed thus, and you will find the oblique aſcenſion of Regel to be about 86° 30′, of Marhal in Pegaſus about 325°, and of Aldebaran, or Bull's-eye, about 43° 30′. Turn each of theſe to the weſtern ſide, you will find their oblique deſcenſion 64°, 360° nearly, and 87°.

Note, There is this difference between the right and oblique aſcenſion and deſcenſion of the ſun and ſtars: for the ſun's oblique aſcenſion, &c. differ every day in the ſame latitude, but the ſtars oblique aſcenſion is every day the ſame.

PROB. III.

To tell the Declination of the Stars.

As for the ſun's place, ſo alſo here, bring the given ſtar to the Brazen Meridian, and obſerve what degree of the Meridian lies right over the center of the ſtar, for that is the declination either north or ſouth, according to which ſide of the Equinoctial it lies.

Thus you will find the declination of Aldebaran to be about 16° 45′ north. The upper Pointer to the Pole in Urſa Major about 63° ½, and the lower one nearly 58° ½, but Regel in Orion I find about 8° ¼ ſouth, and Cor Scorpio about 26° ſouth declination, &c. &c.

PROB. IV.

The right Aſcenſion and Declination of any Star given, to find the ſame at once.

Bring the given degree of right aſcenſion on the Equator to the Brazen Meridian, then look under the degree of declination on the Meridian, and you will find the ſtar at the Meridian under the given degree of declination.

Thus, ſuppoſe it was wanted to find Aldebaran, whoſe right aſcenſion is 65° and his declination 16° 45′ north: firſt bring 65° of the Equinoctial to the Meridian; and looking under 16° 45′ north declination on the Meridian, is found Aldebaran.

So alſo Sirius has 98° right aſcenſion, and 16° 30′ ſouth declination; therefore bring 98° of the Equinoctial to the Meridian, and looking under 16° 30′ ſouth deciination on the Meridian, is found Sirius juſt at the Meridian. The ſame for any other ſtar.

PROB. V.

To tell the Riſing and Setting of the Stars, and the Point of the Compaſs any Star riſes or ſets upon in any Latitude, and on any Day of the Year.

Rectify the globe, and bring the ſun's place to the Meridian; then turn the globe till the given ſtar comes to the eaſtern verge of the Horizon, and the index will point to the time of riſing, and the Horizon will ſhew the point it riſes upon: turn it to the weſt, and the index will point to the time of ſetting, and the Horizon will ſhew you the point it ſets upon.

Proceed thus, and you will find that Aldebaran, on November the fifth, at London, riſes a little paſt ſix in the evening, and ſets about nine in the morning. The point he riſes upon is eaſt-north-eaſt, and the point he ſets upon is weſt north-weſt. But Regel in Orion, the ſame night, riſes a