

*Severall Observations of the Respect of the Needle to a piece of Iron held Perpendicular; made by a Master of a Ship Crossing the Æquinoctial Line, Anno 1684. and communicated by M<sup>r</sup>. Arthur Bayly. F. of the R. S.*

**A**LL the way from *England* to  $10^{\text{d}}$ . *North Latitude*, the *North* point of the needle respected the upper end of the *Iron*, and the  $S^{\circ}$ . point the lower end very strongly.

*Latitude.*  $9^{\text{d}}$ .  $42'$   $N^{\circ}$ . and *Meridian* distance from the *Lizard*  $9^{\text{d}}$ .  $32'$  *West*. The  $S^{\circ}$ . point of the needle did strongly respect the lower end of the *Iron*, but the  $N^{\circ}$ . point did not so strongly respect the upper end as before.

*Lat.*  $4^{\text{d}}$ .  $33'$   $N^{\circ}$ . and *Meridian* dist.  $5^{\text{d}}$ .  $18'$  *West* from the *Lizard*. In this *Lat.* the *North* point of the needle began to decline from the upper end of the *Iron*, and the  $S^{\circ}$ . point to incline more strongly to the lower end.

*Lat.*  $0^{\text{d}}$ .  $52'$   $S^{\circ}$ . and *Meridian* dist.  $11^{\text{d}}$ .  $52'$  *West* from the *Lizard*. Here the *North* point of the needle would not respect the upper end of the *Iron*, nor the lower end neither, but the *South* point did still incline to the lower end, though not so strongly.

*Lat.*  $5^{\text{d}}$ .  $17'$   $S^{\circ}$ . and *Meridian* dist.  $15^{\text{d}}$ .  $09'$  *West* from the *Lizard*. Here the *South* point of the needle would turn to the lower end of the *Iron*, about 2 points, but remove the *Iron* any further, and it would fly away from it, and respect the *Poles* again; but it would not respect the upper end at all; neither would the *North* point respect either; but lay the *Iron Horizontal*, and let the ends of the *Iron* respect the *Poles* of the

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*World,*

*World*, and the *North* point of the needle would turn to the *South* end of the Iron, and contrarily the *South* point of the needle would turn to the *North* end of the Iron, and alter its respect to the *Poles* 5 or 6 points, and no farther; but hold the Iron perpendicular, and put the middle thereof to the needle, it would still respect the *Poles*.

*Lat*<sup>d</sup>. 8<sup>d</sup>. 17' *South*, and *Meridian* dist. from the *Lizard* 17<sup>d</sup>. 35' *West*.

Here the N<sup>o</sup>. point of the needle would not respect the upper end of the Iron, but rather forsake it, but the S<sup>o</sup>. point would still something respect the lower end, and alter its true position about 2 points; but take the Iron and lay it alope over the Compass, so that the upper end be towards the S<sup>o</sup>. *Pole*, and the lower end to the N<sup>o</sup>. and then the N<sup>o</sup>. point would respect the lower end, and follow it; but if you point the upper end to the N<sup>o</sup>. and the lower end to the S<sup>o</sup>. the N<sup>o</sup>. point will forsake it. But if you lay it *Horizontall*, it would do as in the foregoing Observations.

*Lat*<sup>d</sup>. 15<sup>d</sup>. 00' S<sup>o</sup>. and 20<sup>d</sup>. 00' *West* from the *Lizard*.

Here the S<sup>o</sup>. point of the needle began to respect the upper end of the Iron, and the N<sup>o</sup>. point the lower end, and follow'd it about one point; but lay the Iron *Horizontall*, and the N<sup>o</sup>. point respected the S<sup>o</sup>. end of the Iron, and contrarywise, &c.

*Lat*<sup>d</sup>. 20<sup>d</sup>. 20' S<sup>o</sup>. and 19<sup>d</sup>. 20' *West* from the *Lizard*.

Note that the S<sup>o</sup>. point of the needle respected the upper end of the Iron, and the N<sup>o</sup>. point the lower end pretty strongly, and follow'd it, 3 or 4 points; but lay it *Horizontall* and it would do as before.

*Lat*<sup>d</sup>. 29<sup>d</sup>. 25', and 13<sup>d</sup>. 10' *West* from the *Merid.* of the *Lizard*.

Here the S<sup>o</sup>. point of the needle respected the upper end of the Iron, and the N<sup>o</sup>. point the lower end strongly.