新东方背诵文选80篇：58动物的罗盘Animals ’ Compasses PDF转换可能丢失图片或格式，建议阅读原文
https://www.100test.com/kao_ti2020/207/2021_2022__E6_96_B0_E4_B8_9C_E6_96_B9_E8_c96_207310.htm 58 Animals Compasses Researchers have found that migrating animals use a variety of inner compasses to help them navigate. Some steer by the position of the Sun. Others navigate by the stars. Some use the Sun as their guide during the day and then switch to star navigation by night. One study shows that the homing pigeon uses the Earths magnetic fields as a guide in finding its way home and there are indications that various other animals from insects to mollusks, can also make use of magnetic compasses. It is of course very useful for a migrating bird to be able to switch to a magnetic compass when clouds cover the Sun. otherwise it would just have to land and wait for the Sun to come out again. Even with the Sun or stars to steer by, the problems of navigation are more complicated than they might seem at first. For example, a worker honeybee that has found a rich source of nectar and pollen flies rapidly home to the hive to report. A naturalist has discovered that the bee scout delivers her report through a complicated dance in the hive, in which she tells the other workers not only how far away the food is, but also what direction to fly in relation to the Sun. But the Sun does not stay in one place all day. As the workers start out to gather the food, the Sun may already have changed its position in the sky somewhat. In later trips during the day, the Sun will seem to move farther and farther toward the west. Yet the worker bees seem to have no trouble at all in finding the food

source. Their inner clocks tell them just where the Sun will be and they change their course correspondingly. 动物的罗盘 研究人员已经发现迁徙性动物可以借助各种各样的体内罗盘来校正方向。 有些动物借助太阳的位置辨别方向，有些则依靠星星。 还有的白天利用太阳，晚上利用星星。 有研究发现信鸽以地磁场为向导来找到回家的路。 还有迹象表明许许多多其它生物，从昆虫到软体动物，也能利用这种磁场罗盘。 具有这种磁场罗盘，对候鸟来说当然非常有用，因为如果乌云遮日，它可以以磁场为向导继续飞行，否则它就只好着陆，等待太阳重新出现。 即使是借助太阳或星星导航，其中的学问也比它表面看起来的要复杂得多。 例如，一只工蜂找到了花圃蜜园，急忙飞回蜂房报信。博物学家发现这只蜂探在蜂房里跳了一段极为复杂的舞，通过这段舞她不但告诉其它工蜂食物有多远，而且报告了以太阳为参照的飞行路线。 但太阳不会呆在天上不动。 当蜂群出发采食时，太阳可能已经多少改变了它在天空中的位置。 出发得越迟，太阳就越偏西，可这似乎没给寻找食物源的工蜂们带来任何不便。 它们体内的时钟告诉他们太阳应在的位置，据此它们相应地改变前进的方向。