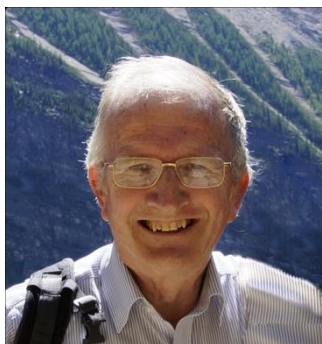


Title	Astonishing Marvels of Migration
Topic/Field	Life sciences / earth and environmental sciences / engineering and applied sciences / astronomy and planetary science/
Target audience	Professionals / General / Family / Youth / Children
<p>Migration brings such creatures into great dangers such that evolution has no answer to the key issues of navigation and survivability, especially when animals are making journeys they have never made before. This talk shows that such marvels teach us to glorify the God of Scripture.</p> <p>Migrating creatures remarkably know where to go, as they move across the globe. Some birds migrate vast distances measured in thousands of miles, with a number doing this across open waters. Just how do they do this? Not only must they know how much food (fuel) to eat to get to where they are going, they also need to find their way with no iphone to guide them! The earth's magnetic field is crucial and amazingly, a number of birds leave their young behind to make the long journeys on their own having never done this before! Without mum and dad to guide them, they somehow know how much to eat, plus they know exactly where to go on the "map" imprinted on their brains. This stunning ability beats the most sophisticated man-made GPS!</p> <p>But it is not just birds which migrate – many land creatures migrate and also sea creatures. In one talk we can only cover some of these creatures and we will major on turtles, butterflies and birds.</p> <p>Main points</p> <ol style="list-style-type: none"> 1. Introduction - Some of the extraordinary journeys made in the natural world. Reference to many creatures which migrate. 2. Turtle migration 3. Butterfly migration 4. Bird Migration 5. Extreme distances travelled by some birds. 6. What you need to make a long journey? – Map / Compass / / where you are on that map / Right amount of fuel 7. Use of the magnetic field of the earth 8. Lessons for us for we also have to make a Journey. 	
Author's name (first name, last name)	Professor Andy McIntosh
Author's organization and appointment	Emeritus Professor, University of Leeds, UK and Liberty University, Virginia, USA

Curriculum Vitae



Professor Andy McIntosh holds an Emeritus chair in Thermodynamics at the University of Leeds and is also an adjunct professor of Engineering at Liberty University in Virginia. He has had a long scientific research career concerning mathematics, combustion and aeronautics, both in academia and in a government establishment, and is author of over 200 academic papers. Andy is the inventor of the μ Mist novel spray technology which copies the Bombardier beetle spray and has led to this spray technology being applied to fuel injectors, pharmaceutical sprays, aerosols and more recently fire sprinkler systems. This was awarded the 2010 Times

Higher Educational award for the Outstanding Contribution to Innovation and Technology. His work has also included investigations into the fundamental link between thermodynamics and

information. This strikes at the heart of the issue concerning abiogenesis – the information in living systems is neither matter nor energy but is absolutely essential for life. He is now actively researching the specific energy pathways involved in biochemical systems engineering.

Andy lectures widely on origins showing that true science is entirely consistent with a biblical view of origins. He has also authored the books *Genesis for Today* (Day One, 6th Edition, 2017), *A verse by verse examination of Genesis 1-11* (Day One, 2016) and has contributed to a number of other books including *Wonders of Creation—Design in a fallen world* (co-authored with Stuart Burgess and Brian Edwards, Day One, 2017), *Origins—examining the evidence* (Truth in Science, 2011), *In six days* (Master Books, 2009) and *Should Christians embrace Evolution?* (IVP, 2009). He has also written the booklet *Are you really an Atheist?* (2018), co-authored the booklets *Is it True—Evidence for Creation* (2018) and *A wonder of Creation—the Kingfisher* (2024), and is co-director of the UK education think tank *Truth in Science*. He is married with 4 children (one of whom died in infancy), and 7 grandchildren.

Professor Andy C. McIntosh DSc, FIMA, C.Math, FEI, C.Eng, FInstP, MIGEM, FRAeS