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THE EARTH'S YOUNG MAGNETIC FIELD

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Invisible lines of magnetic force enclose our planet in what scientists call a **dipolar magnetic field**. Today these lines go from magnetic south to magnetic north, which are offset a few degrees from the geographic poles.

Some minerals, like magnetite, can "remember" the direction and strength of the surrounding magnetic field. This happens most often in volcanic rocks. When lava cools below a certain temperature and starts to solidify, the magnetite will record the magnetic field. Sedimentary rocks also can preserve magnetic orientation. This happens when iron minerals crystallize within the deposit, or when existing crystals, acting like tiny compass needles, align themselves with the magnetic field as they sink to the bottom of a sea or lake.

Scientists have noticed that magnetization in rocks is not always the same. Sometimes it is normal (i.e., pointing in the same direction as today), or it is reversed; sometimes it is weak, while at other times it is strong. What could this mean?

To evolutionary geologists, it means that the Earth's magnetic field has experienced numerous reversals. They also believe the field itself is at least three billion years old (Birkeland and Larson, 1989, p. 151). Their standard explanation is that movement of molten iron in the outer core creates electric and magnetic currents. As the Earth also spins on its axis, the resulting magnetic field has two poles. Occasionally, the movements will slow down, causing the magnetic field to die away. When the movements begin again, the magnetic field may be oriented in a different direction. This whole model is called a **self-excited dynamo**.

The problem is that this model cannot adequately explain the origin of the magnetic field. Further, it is very doubtful that the dynamo could fluctuate freely over millions of years. For the late creationist physicist Thomas G. Barnes, these problems suggested that the magnetic field, and hence the Earth, are a recent creation. He observed that the strength of the magnetic field is declining. If we project backwards in time, we will come to a point where the magnetic field is impracticably strong. This occurs no more than nine to ten thousand years ago (Barnes, 1983).

How do we explain the many magnetic reversals in the geological record? At first, Barnes said they were the result of self-magnetization, or magnetization by local nondipole fields. In other words, they had nothing to do with Earth's magnetic field. However, it may be possible to put the reversals in a creationist perspective. This is the approach taken by D. Russell Humphreys, who has proposed that the reversals occurred in quick succession during the Flood (1986,1988) and who has provided a mechanism for these disturbances (1990a). So, the reversals are associated with the global Flood, while the current decline began after the Flood.

Other research supports the work of these two creationists. For example, Robert Coe has found several layers of volcanic rock in Oregon that suggest the field reversed in only two weeks (*Discover*, 1992). But the best evidence is coming from our planetary neighbors. Planets with solid cores are especially hard to explain, because the dynamo theory cannot work without circulating molten rock. One researcher commented that Mercury "doesn't match the dynamo model at all" (as quoted by Eberhart, 1990). Indeed, Humphreys (1990b) has shown that the magnetic characteristics of the Moon and eight other planets (excluding Pluto, for which there are no data) fit with his theory.

Although the dynamo model remains the dominant view (e.g., Merrill and McFadden, 1990), we continue to see statements such: "Geoscientists still do not know how or why the magnetic field switches polarity" (*Science News*, 1989); and "researchers are mystified about what causes these flip-flops" (Kerr, 1992, 255:160). Yet Barnes and Humphreys have shown that the field is not ancient, that it is not self-caused and self-maintaining, and that the reversals fit within a catastrophic Flood framework.

REFERENCES

Barnes, Thomas G. (1983), *Origin and Destiny of the Earth's Magnetic Field* (El Cajon, CA: Institute for Creation Research), revised edition.

Birkeland, Peter W. and Edwin E. Larson (1989), *Putnam's Geology* (New York: Oxford University Press), fifth edition.

Discover (1992), "Flipped Out," 13[5]:12, May.

Eberhart, J. (1990), "Cold Message from Mercury's 'Hot Poles,'" *Science News*, 137:375, June 16.

Humphreys, D. Russell (1986), "Reversals of the Earth's Magnetic Field During the Genesis Flood," *Proceedings of the First International Conference on Creationism*, August 4-9, 1986, ed. Robert E. Walsh, Christopher L. Brooks and Richard S. Crowell (Pittsburgh, PA: Creation Science Fellowship), 2:113-126.

Humphreys, D. Russell (1988), "Has the Earth's Magnetic Field Ever Flipped?," *Creation Research Society Quarterly*, 25[3]::130-137, December.

Humphreys, D. Russell (1990a), "Physical Mechanism for Reversals of the Earth's Magnetic Field During the Flood," *Proceedings of the Second International Conference on Creationism*, July 30-August 4, 1990, ed. Robert E. Walsh (Pittsburgh, PA: Creation Science Fellowship), 2:129- 142.

Humphreys, D. Russell (1990b), "Good News from Neptune: The Voyager 2 Magnetic Measurements," *Creation Research Society Quarterly*, 27[1]: 15-17, June.

Kerr, Richard A. (1992), "A Simple Flip-Flop for Earth's Poles?," *Science*, 255: 160-161, January 10.

Merrill, R.T. and P.L. McFadden (1990), "Paleomagnetism and the Nature of the Geodynamo," *Science*, 248:345-350, April 20.

Science News (1989), "Quick Flip-Flop in the Magnetic Field," 135:188, March 25.

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