

BULL'S-EYE!

A casual glance might lead one to believe that our satellite Parting Shot shows impact structures on a dusty, alien world like Mars. In fact it shows one of the geological wonders of our own world, the great ring-dyke of Meugueur-Meugueur, in the Air region of Niger, in the central Sahara. It is almost perfectly circular, 65 km in diameter and, on average, 250 m thick. Before you disfigure your issue of *Elements* with a compass, I will tell you that it is actually slightly extended along a NNE-SSW axis. There is a kilometre-scale offset marked by a dyke in the southeast. Over most of its length the Meugueur-Meugueur intrusion has been eroded out to form a steep-walled valley, most obvious where it cuts the composite ring intrusion of Tamgak in the north of the photograph. The Tagmeurt ring intrusion, to the east, is younger than the ring dyke. There are 28 igneous ring complexes in the Air, many of them almost perfectly circular, which were emplaced over a brief interval in the Silurian, at 407 ± 8 Ma. Many of these so-called 'anorogenic' intrusions are composed of alkali granite, but most of those in the photograph are composed of plagioclase-rich cumulates, including anorthosites, with subordinate granitic and syenitic derivatives. The Meugueur-

Meugueur intrusion itself is composed of olivine-rich gabbro, with inclusions of leucogabbro, anorthosite and dunite. Like anorogenic magmatism worldwide, the basic members have geochemical affinities with ocean island basalts (OIB). The ability of anorogenic and OIB magmatism to begin, apparently spontaneously, in undeformed continental or oceanic crust and its persistence over long periods of geological time remain outstanding problems in igneous petrology.

The dune system in the north-eastern corner of the image is the edge of the fearsome Grand Erg du Ténéré. Camel caravans still carry salt across this great sand sea over 600 km from the oasis of Bilma to the city of Agadez. In the last century, these caravans were 20,000 strong. Northern Niger is the domain of the Taureg, who cruise this arid terrain on magnificent peach-coloured camels, with elaborate saddles decorated with silver from recycled Austro-Hungarian schillings, and carrying great curved swords beaten from early Land Rover springs. They are masters of a landscape in which most *Elements* readers, denied their air-conditioned cars, would soon expire.

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PARTING QUOTE

I ASK YOU TO LOOK BOTH WAYS. FOR THE ROAD TO A KNOWLEDGE OF THE STARS LEADS THROUGH THE ATOM; AND IMPORTANT KNOWLEDGE OF THE ATOM HAS BEEN REACHED THROUGH THE STARS.

ARTHUR EDDINGTON 1882-1944

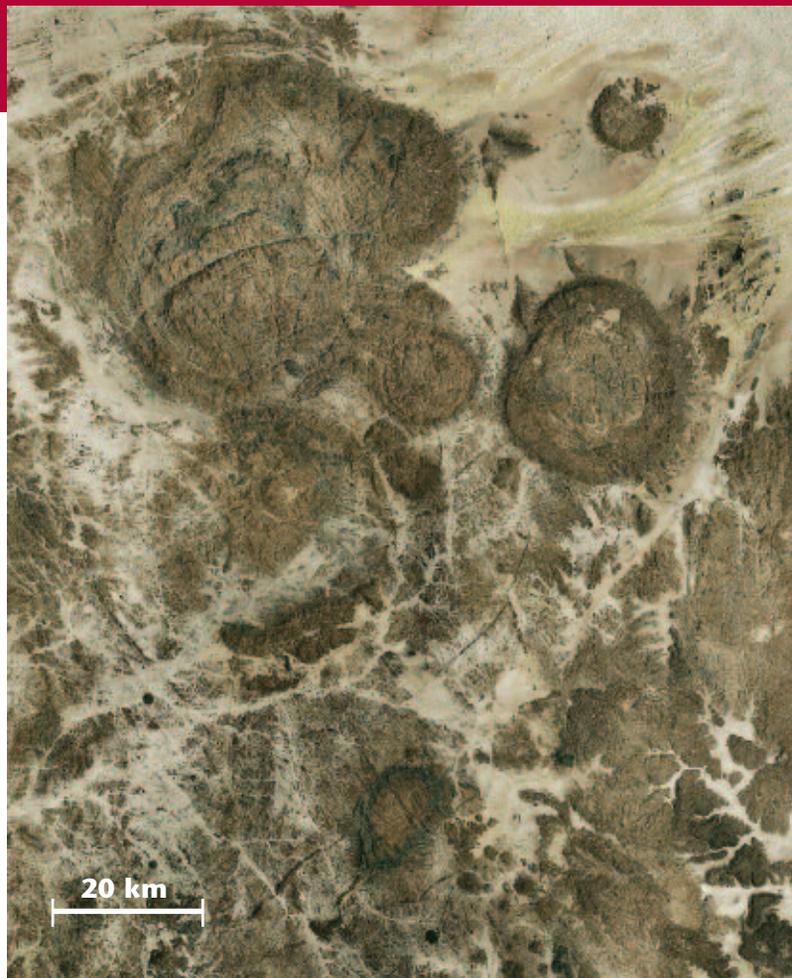


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