



Pierre Léna

Racing the Moon's Shadow with Concorde 001



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Astronomers' Universe

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Racing the Moon's Shadow with Concorde 001

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Cover illustration and Frontispiece: Racing the Moon by Don Connolly, Sydenham, Ontario, Canada. Conception by L. Robert Morris, Ottawa, Canada. Composition by Don Connolly and L. Robert Morris. Acrylic on board (49x68 cm), 2004. This artist view is done with the assumption that the viewer is located 3,000 m below the aircraft, at latitude 16.19°N, longitude 14.38°E, altitude of Concorde 001 17,602 m above Niger, time : 12h 07 min 24 s UTC.

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*I dedicate the English translation of this book
to the young students of Ross School, where
they happily discover the beauty of science,
the richness of human cultures, and how best
to serve their sisters and brothers, inhabitants
of our planet*

Acknowledgements

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¹ The *Fondation des Treilles* was set up by Anne Gruner-Schlumberger with the aim of encouraging a dialogue between science and the arts and hence to stimulate progress in contemporary research and creativity. It hosts researchers and writers at the *Domaine des Treilles* in the Var region of France: <http://www.les-treilles.com>

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Overture

[...] *mon luth constellé*
Porte le Soleil noir [...]
Gérard de Nerval²

On that 30 June 1973, the summer Sun rose over Las Palmas, the capital of the Canary Islands off the African coast, but this time there was something different in its appearance. A piece of the solar disk was missing, blacked out by the edge of the Moon, for our satellite had just begun to move between the Sun and the Earth. At sunrise on the same day, far to the west in Dutch Guiana (now Surinam), the tree frogs of the species *Hyla calcarata* began to chorus, despite the unusual time of day.³ For indeed it was there on the equator that the great dark disk formed by the Moon's shadow on the surface of the Earth, surrounded by penumbra, began its race towards the east, moving at a speed of more than 2000 km an hour relative to the ground, soon to cross the African coastline. Astronomers, who know how to predict not just the occurrence, but all the details of these eclipses, had explained how this one would be total at every point on the Earth that the shadow would sweep past and partial in each region falling only in the penumbra. Better still, in Africa, total obscurity would last, exceptionally, for 7 min, and the sky would be so dark that the stars would be visible even at midday. This record length would make it the eclipse of the century, as announced by the media. By around 10 o'clock in the morning, the black indentation had grown to block out almost half of the Sun's disk. Slowly, a great white bird began to move across the tarmac at Las Palmas airport to position itself on the runway. Fitted out with a bright red survival suit—standard dress for test flight crew members, in case they need to be fished out of the sea—I found myself aboard Concorde 001F-WTSS, the prototype of the future supersonic

² [...] *and my constellated lute*
Bears the black Sun [...]

³ Jean Lescure: *Comportement vocal des amphibiens et des oiseaux au Surinam*. In: *Soleil est mort: l'éclipse totale du 30 juin 1973*, G. Francillon & P. Menget (eds), pp. 91–103 (1979). See the bibliography.