



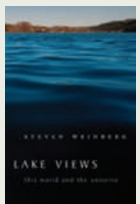
Engineering needs an image boost — one that is delivered by Henry Petroski in *The Essential Engineer* (Knopf, 2010).

Explaining how the discipline can solve the planet's problems, he discusses how engineers turn the abstract ideas of scientists into reality, from implementing biofuels and electric cars to producing nuclear power and mitigating climate change. Today's challenges might seem daunting, but Petroski points out that it was ever thus: who would have thought 150 years ago that we would land on the Moon?



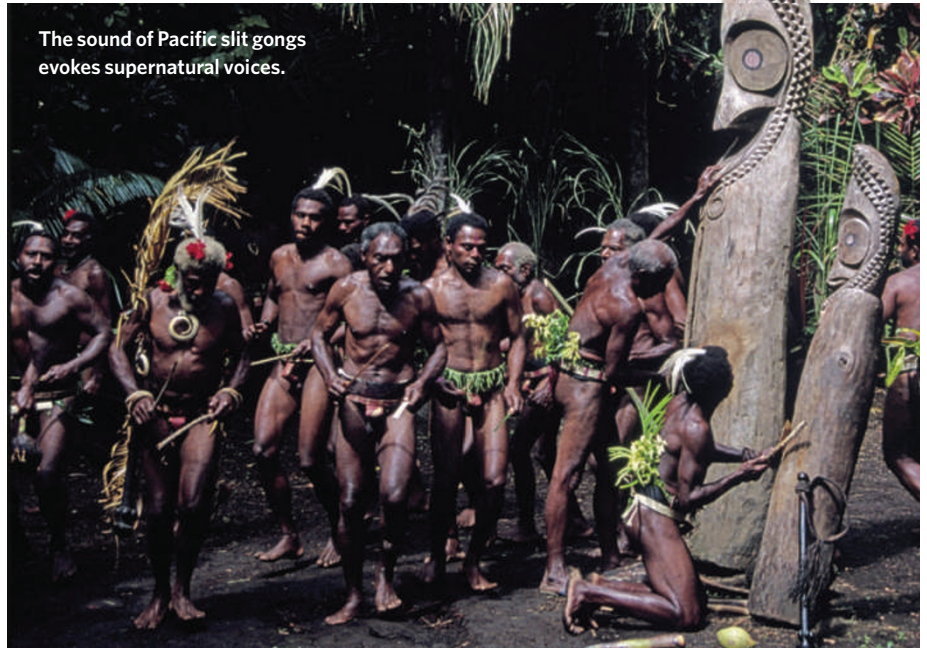
Technology saved the lives of the passengers and crew of the US Airways plane that made an emergency landing on New

York's Hudson River a year ago. In *Fly by Wire* (Penguin, 2010), William Langewiesche takes a look behind the scenes of aviation research, asking how much of the 'miracle on the Hudson' was a result of the experience of celebrated pilot Chelsey Sullenberger, and how much came from the foresight of engineers. Looking into airliner design, he explains how jet engines are built to withstand bird strikes and how flight computers complement the skills of pilots.



Theoretical physicist Steven Weinberg leaves behind high-energy physics to take a more sedate form of mental travel in his latest collection of essays,

Lake Views (Harvard University Press, 2010). Inspired by the scenery of Lake Austin, Texas, over which he gazes from his desk, the Nobel laureate offers pragmatic musings on diverse topics from cosmology and politics to war and religion. Always rational, often sensitive and witty, he assesses topics such as missile defence and the future of science and its quest to attain a theory of everything.



The sound of Pacific slit gongs evokes supernatural voices.

E. KJELGREN

Oceania's musical technology

Sounding the Pacific: Musical Instruments of Oceania

Metropolitan Museum of Art, New York
Until 6 September 2010

The unique musical technology of Oceania — the region that encompasses Melanesia, Polynesia, Micronesia, Australia and Island Southeast Asia — is highlighted in an eclectic exhibition at New York's Metropolitan Museum of Art. Running until September, *Sounding the Pacific* charts the techniques by which local instrument builders created and resonated sound for diverse uses, from the sacred to the prosaic.

The lunet — a wooden friction drum invented on the island of New Ireland in Papua New Guinea — was rubbed during rites to honour the dead. Resembling a giant insect larva, the oblong instrument is inset with eight eye-like opercula, the 'lids' with which *Turbo petholatus* sea snails seal their openings. A musician would run his moistened palm across the lunet's four carved tongues to create a rising series of tones similar to the cry of the local bird from which the instrument took its name. "It is both a first of its type and a revolutionary design," explains curator Eric Kjellgren.

Alongside familiar percussion instruments are didgeridoos, jaw harps, nose flutes, slit gongs, ukuleles and ocarinas, many carved into strange shapes or adorned with fantastic animals. When swung on a string, a bullroarer from Papua New Guinea, made from a 1-metre

slat of wood with a hole bored in one end, creates a deep whirr like an oversized bumblebee. An etched bamboo nose flute from 1830s Fiji, tooted by exhaling through a single nostril, accompanied courtship rituals. A pair of fearsome 4-metre-long slit gongs from the Middle Sepik region of Papua New Guinea, hollowed from logs and ornamented with elongated carved catfish heads, were beaten in relays for months at a time to evoke the voices of supernatural spirits.

Although many of these specialized instruments remained local, others have travelled around the world. The didjeridoo, a type of trumpet made from a tree limb hollowed out by termites, originated in northern Australia but has become popular worldwide. By contrast, the ukulele — meaning 'jumping flea' — was modified from a small guitar called a braguinha, probably introduced to Hawai'i in 1879 by Portuguese settlers from Madeira.

Stringed instruments are rare in the Pacific, but one fine example on show is a sesando from Timor Island in Indonesia. This graceful, century-old tube zither consists of a bamboo stem fitted with metal strings and surrounded by a resonating chamber made from a pleated palm frond. Plucking the strings creates a dulcimer-like sound. Considered to be a sacred instrument, the music of the sesando, Kjellgren explains, is often accompanied by philosophical songs that meditate "upon fate and the fleeting nature of human life".

Josie Glausiusz is a journalist based in New York. e-mail: jg@planetjosie.net