closer to the Philippines, Tykot reported. 

The tightness of the matches makes it “almost impossible” that the flecks came from some as yet undiscovered obsidian source closer to the excavation site, says Tykot. Ron Hancock, a chemist and archaeologist at the University of Toronto who saw Tykot’s presentation, agrees, saying that the chemical evidence tying the obsidian to distant sources “looks real,” which “gives good credibility to the story” of early sea trading. And because materials in the sediment layers from which some of the obsidian was taken have been carbon-dated to 4000 B.C., Tykot and Chia conclude that the trading network was in place by that time.

The new results are “a tremendous surprise,” says Bronson, and not just because of the early date. Widespread long-distance sea trading in the southwestern Pacific, he explains, has long been thought to have arisen around 1600 B.C., when seafarers pioneered trade routes extending Melanesian islands near New Guinea to Polynesia in the Central Pacific, leaving behind a trail of distinctive pottery, obsidian, and other ornaments known as the Lapita culture. The new obsidian flecks not only show that traders took to the open ocean much earlier than the people who made Lapita wares, but that their trading network extended far to the west of New Guinea, nearly to Southeast Asia. “This is revolutionary, because it offers apparent proof for a routine trading system in [a westward] direction,” says Bronson.

The evidence that skilled navigators were roaming the western Pacific at such an early date also supports a new picture of how the Pacific islands were settled in the first place, says Bronson’s Field Museum colleague John Terrell. In the standard picture, the people who settled Polynesia reached the central Pacific by island-hopping from Southeast Asia 3600 years ago—perhaps picking up some fellow travelers from Melanesia along the way (Science, 7 January 1994, p. 32). The new work, however, supports the idea that instead of setting out on a one-way eastward migration, the ancestral Pacific islanders opened up a “voyaging corridor” between Southeast Asia, Melanesia, and Polynesia, “with people and ideas flowing back and forth,” says Terrell. The obsidian at Bukit Tengkorak, adds Bronson, “suggests that the early migrations come out of an early commercial system at a surprisingly early date capable of sophisticated navigation.”

Because this picture demands that archaeologists reconsider some long-held notions, says Bronson, Chia and Tykot’s claims are likely to come under intense scrutiny, especially the radiocarbon dating. Bronson says, however, that there’s no reason at this point to doubt the early dates. Captain Cook’s de-motion may turn out to be permanent.

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