ON A VISIT TO MALI to help a friend in the Peace Corps repair some village machinery, Jock Brandis, a Wilmington, N.C., TV and movie engineer, saw women bloodying their hands while manually shelling peanuts to feed their families.

Peanuts, Brandis knew, can be a great cash crop, improving soil by fixing nitrogen. Potentially, they could complement the nitrogen-depleting cotton the villagers were already growing for sale—but these sun-dried peanuts were too hard to shell by hand. Before leaving, Brandis promised the head of a local women’s cooperative to ship her a sheller, figuring he’d find something on the Internet. But all he uncovered were diesel-guzzling behemoths—totally impractical in a poor village 300 miles from Timbuktu.

After considerable effort, Brandis devised an inexpensive, virtually indestructible machine that lets an operator shell nuts 40 times faster than by hand, cranking out 125 pounds per hour. The real beauty of Brandis’s butter-churn-size concrete sheller is that it can be made anywhere, using a pair of fiberglass molds.

An estimated half-billion people rely on peanuts as their primary protein source. Brandis and some Peace Corps veterans have launched the nonprofit Full Belly Project, which is distributing the device to additional countries, including Ghana, Zambia and the Philippines. Next up: a pedal-operated sheller that Brandis is perfecting. “Two human legs,” he says, “create eight times the power of one arm.”

B E Y O N D T R A N S P L A N T S

INNOVATORS:

Jock Brandis

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GROWING REPLACEMENT ORGANS has been one of the “maybe someday” fantasies of doctors for a generation. Gone would be long waiting lists for transplants—along with complications arising from tissue rejection. In 2006, medical researchers led by Anthony Atala and Alan Retik announced that they had largely regrown bladders using their patients’ own cells, then implanted them. Science fiction had become fact.

Surgeons typically repair disease-damaged bladders using intestinal tissue from a patient’s own body, but the procedure often leads to complications, and even cancer. “What really