these same cotton varieties. They felt sure that what had worked among poorly educated Americans—demonstration farms, fairs at which short plays about new farm techniques were performed, and a kind of early 4–H movement—would also work among poorly educated Chinese.

At times, their naïveté and cultural ambitions produced bizarre results. At the first Chinese agricultural fair, in Linyi, Shandong, the county's agricultural extension chief and an American missionary played themselves in a skit with the following plot: farmers, frustrated by the low price their native cotton is fetching, pray to a local god for help. The missionary lectures them on the vanity of "idolatrous worship," and sends them to the extension agent, who gives them seeds for the new cotton varieties. The new crop solves their problems and makes the old gods unnecessary. But Linyi was near places where Christian converts and other Chinese had killed one another in the Boxer Uprising just twenty years before; there were undoubtedly better ways to advertise the new cotton.

More material problems were a still greater impediment. The new crops sometimes interfered with well-established local customs in destabilizing ways. In western Shandong, the poor had a customary right to glean anything left in the ground after a certain date. But the new cotton grew more slowly than native varieties, and about 70 percent of its bolls were not yet open when, in the words of county agents, "tens and even hundreds of men and women" stood on their rights and rushed the fields, claiming most of the crop. In response, the local "cotton societies" that had been organized to distribute seed and information became armed vigilantes. Some county agents wound up leading a war against the poor, and even against old elites, who objected to the power that new seed, credit, and marketing arrangements gave outsiders over "their" peasants.

Where the crop did take hold, peasants of all classes reaped more lucrative harvests. But local spending for public security soared, too. Meanwhile, many farmers who used to hire their poorer neighbors to help with (and guard) the harvest were now unwilling to run the risk of miniature class wars; instead, their wives and young children began to do more field work. And increased dependence on outsiders had its hazards, too: one group of entrenched Japanese seed suppliers/cotton buyers even tried to pay for the crop in opium.

Despite such setbacks, the new crop did work. By statistical measures, Chinese peasants in some areas responded to the new crop as quickly as their counterparts in the American South—despite the added barriers posed by warlordism, shaky transportation, and other problems. But it was no panacea: as the costs of social conflict mounted, some Americans gained new respect for village elders who had banned a more efficient sickle on the grounds that its benefits were not worth the new struggles it would touch off between farmers, hired harvesters, and thieves.

Certainly Buck's hope that these efforts would ward off communism by showing that science could help the poor without class conflict did not come to pass. Ironically, in areas where gleaners had successfully disrupted the new cotton in the 1920s, it was left to the Communist regime of the 1950s to create an environment in which the rural poor stopped interfering with the new breeds. The idea of uplifting the world's poor through American botany, educational techniques, and involvement in world markets has a rich history: so do exaggerated hopes and ignorance of the varied ways in which world trade affects local societies.

## 4.14 One Potato, Two Potato

Sometimes the big story is buried in the fine print. When Spain conquered much of the Americas, the excitement in Europe was over silver and gold. As other Europeans followed, interest turned to exotic agricultural exports: tobacco, coffee, cocoa, sugar, all New World crops, or crops that could be grown there on an unprecedented scale. None was very good for you, but Europeans soon craved them all, and grew none of them at home. Huge plantations were cleared, slaves imported, companies chartered, royal monopolies created, fortunes made and lost.

But the New World crops that would keep the world's burgeoning population eating were humbler fare, which excited no such interest from big investors. One was maize, a corn variety that grew throughout the Americas; it spawned no new types of agribusiness for centuries, but it was so miraculously hardy and nutritious that even without big sponsors it was soon being planted by peasants around the world.

Humbler still was the potato, "discovered" by Spanish soldiers in the Peruvian Andes in the 1550s. Considered a second-class food even in its homeland, it had never made it north of Colombia and was rarely planted outside the marginal farmlands of mountain slopes. No London merchant ever formed a new company to trade potatoes; and the European masses gave it a far cooler welcome than its less nourishing, even poisonous, New World cousins. But crises created needs to which the potato was beautifully suited; today, potatoes are the second largest food crop in the world.

Potatoes were important in the Andes for four simple reasons. First, they would grow at extremely high altitudes, withstanding frosts that killed almost any other edible plant. Second, they yield a lot of calories per acre—more even than rice, and vastly more than wheat, oats, or other grains—and a wide variety of vitamins. Third, they required little labor, leaving high-