

# Fluid Labor and Blood Money: The Economy of HIV/AIDS in Rural Central China

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## Ethnography, Epidemiology, and Activism

This essay is, first of all, an ethnographic account of several villages in Henan, in the agricultural heartland of China, during an epidemic. This epidemic was at first silent, with the pernicious spread of AIDS at a time when those inflicted were either unaware of the existence of the HIV virus or thought of it as something remote and foreign both geographically and morally. Almost exclusively, they were rural people who, early in the 1990s, turned to their own blood as a ready source of cash income that would allow them to participate in China's newly liberalized market economy. When the Chinese government finally broke its silence on this epidemic in 2004, it acknowledged that the commercial collection of plasma accounted for a quarter of all cases of HIV infection in China and that this epidemic had reached far beyond Henan Province (State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China 2004).<sup>1</sup> Epidemiologists have now come to characterize the HIV infection among "former plasma donors" as a separate epidemic in China's HIV/AIDS crisis, distinct from outbreaks resulting from IV drug use or sexual transmission (see, e.g., Wu et al. 2004).

Second, I also present this as an exercise in what I call an "anthropological epidemiology." It differs from conventional medical epidemiology in its broader interpretative scope in scrutinizing "determinants" in the spread of disease, but nevertheless it shares with epidemiology a practical orientation and engagement. What I have woven into this ethnography are threads of analysis that implicate the new Chinese economy and also its emergent social and cultural formations that affirm, celebrate, and are, at the same time, intricately "embedded" in this economy, to invert Karl Polanyi's (2001) much debated formula. My interrogation takes as its point of departure a simple fact, noted only perfunctorily as a

*CULTURAL ANTHROPOLOGY*, Vol. 21, Issue 4, pp. 535-569, ISSN 0886-7356, electronic ISSN 1548-1360.  
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demographic variant in epidemiological investigations of this epidemic: the “at-risk” and the actually infected population are predominantly “rural residents” (*nongcun renkou*), a bureaucratic category designating the less powerful, less entitled, but far more numerous rural people whose residence is fixed by the household registration system (*hukou zhidu*) still remaining from the socialist era. This structure of inequality has survived even the most radical eradication of socialist institutions to ensure that rural migrants provide a vast source of cheap labor through their exclusion from basic social services in urban areas. This resource is a crucial element of much of China’s recent economic growth.

This analysis will allow us to go beyond exposing those factors that are less “proximate” but no less “fundamental” and decisive in determining the patterns of distribution of disease (Link and Phelan 1995). While recognizing “structural violence” (Farmer 1996, 2001), “inequality” (Fassin 2003; Nguyen and Peshard 2003), “socioeconomic conditions” (House 2001, 2002), and “political economy” (Baer 1982; Morgan 2003; Singer 1998) as bearing not only causal but also reciprocal relationships with disease, my emphasis is to demonstrate how these connections are established in historically, socially, and culturally specific contexts. The pathological confluence I uncover here lies underneath the ideologically sustained, second-order “reality” of benign and even benevolent economic imperatives, which propel what seem to be purely economic circulations in several apparently unconnected markets. My ethnographically grounded analysis traces the imbrications of these spheres of circulation: the selling of plasma and the blood products market, the market for migrating “agricultural” labor, the pharmaceutical market, and the consumption of antiretroviral therapy.

Following from this critical inquiry is an imperative for a “critical praxis” (Singer 1995) as the other side of the analogy I am drawing here between ethnography and epidemiology. Although bringing practical as well as theoretical engagements together in anthropology may “generate insights otherwise impossible to achieve” (Hale 2006:98), I argue, they should not be kept separate conceptually or practically in the first place. As ethnographers, we cannot avoid taking a position within the very social worlds in which we carry out our research. No matter what position is taken, it is implicitly or explicitly political and has political consequences. In writing this ethnography, I feel a profound sense of dis-ease with interpretation, in that what I have tried to bring together is a “partial perspective” (Haraway 1991) constrained by the perspectives I was privileged to access. What I have decided to do is to preserve the ambiguity and the situated immediacy that have been part and parcel of the circumstances through which I was allowed, after many failed attempts, into the liminal world of the so-called AIDS villages in Henan, where I have been involved in the lives of HIV-infected villagers since I began field research in 2003.

At that time, it was impossible even to find a site for ethnographic research through “proper channels,” as local governments were trying to conceal the presence of the epidemic.<sup>2</sup> Officials also intensified and took advantage of the

infected villagers' fear of being identified and stigmatized. Journalists, activists, and nongovernmental organization (NGO) workers were routinely rounded up, harassed, or chased away by the local police. Accompanied by an independent photojournalist who had evaded police detection many times, I made an initial visit to several villages to make arrangements for longer field stays. Several days later, when I made a telephone call from the train station in Beijing to a family I had planned to stay with in Henan, I was told not to come because the local police, having just handcuffed and taken away a journalist and her cameraman from China Central TV, had put their house under surveillance.<sup>3</sup> At the last minute, I had to change my destination en route and went to the village of another HIV-infected villager, whom I had been able to contact through my intrepid photojournalist colleague.

A more serious hurdle to meaningful, in-depth ethnographic encounter was the appearance and even the reality of exploitation that conventional ethnography would unavoidably create in this particular research context. The trusting relationship, for example, between journalists, activists, and NGO workers, on the one hand, and the infected villagers in a few high-profile "AIDS villages," on the other hand, quickly deteriorated into animosity. Both sides felt betrayed. The villagers told their stories of misery and allowed their pictures to be taken, but they soon felt that they had been used by powerful outsiders who were able to garner considerable "resources" for themselves. The outsiders thought that they had courageously rendered a moral service by uncovering the epidemic and bringing to light the suffering that the villagers had endured but were stung by the demands for compensation by the villagers. A few journalists even confided to me their private theories for the epidemic: it was caused by laziness and greed on the part of rural people after all. Both in my practice in the field and in my writing, I find that I must side with the villagers. Their sense of betrayal, as I will demonstrate, falls into a chronic pattern in which they have been shortchanged in the market for their labor, their blood, their disease, and their suffering. To avoid running into this kind of moral dilemma, it took more than just inserting myself into the flow of social life as an observer; I had to integrate myself into the lives of the HIV-infected villagers as an activist, to share with them their frustrations, anxieties, suffering, and aspirations.

The technical and temporal gap between HIV infection and AIDS is all too easily obliterated if those infected with the virus are condemned to social death before they develop the disease syndrome itself.<sup>4</sup> In the midst of intensifying media attention on the AIDS-related deaths in a few villages in Henan, the government hastily rolled out a free antiretroviral (ARV) treatment early in 2003, more as damage control than as a genuine effort to save lives. This limited program distributed ARV drugs but without any medical services to provide testing or clinical staging for initiating and monitoring the treatment, dealing with side effects, and ensuring adherence. With uncharacteristic modesty, the government claimed as a measure of the program's success a three-year survival rate of only 50 percent (Zhang 2004),

which is, in fact, no better than the rate without any treatment at all. Thus, there was speculation among many villagers, alarmed by the violent side effects that some experienced after initiating the therapy, that the free ARV drugs were provided as part of a conspiracy to hasten their deaths and, thereby, eliminate a problem that the government had been forced to deal with. This may not have been far from the truth. A prominent epidemiologist and consultant for the government once said to me in private: "What's the point of extending miserable and useless lives for a few more years?" The perception of abandonment quickly became reality when, out of fear, many villagers refused the treatment soon after they had started it.<sup>5</sup>

I carried out much of the fieldwork for this research in the role of an applied medical anthropologist. Much of the epidemiological work regarding HIV/AIDS in China has to do with identifying and monitoring risk factors and infected populations to keep the HIV epidemic from spreading to the general population.<sup>6</sup> My goal, however, was to help forestall a preventable epidemic of AIDS from spreading further among the HIV-infected plasma donors.

Accompanied by friends from the village I had settled in, I began by visiting other villages that had a history of plasma collection but had not been recognized as "AIDS villages" by the government. I sought to inform unrecognized victims about the promises made by the national government to alleviate the financial hardship of HIV-infected villages, such as a reduction of agricultural taxes, tuition waivers for their school-age children, living stipends for orphaned children, and free HIV testing and ARV treatment. Because these promises were not centrally funded, local governments were reluctant to allow this information to circulate freely. Wherever we visited, we encouraged villagers to band together and make demands on their local governments. I also conducted research to develop a protocol for using total lymphocyte counts as a surrogate for the expensive and often unavailable CD4 testing. In so doing, I hoped both to bring basic medical knowledge about infection and ARV treatment to the villagers and to provide an affordable method for them to monitor their clinical progress and time the initiation of their treatment (Jacobson et al. 2003; Kumarasamy et al. 2002; Lau et al. 2003; Schreiber and Friedland 2004).<sup>7</sup>

What brought out most clearly for me the contradictions between critique and praxis in medical and cultural anthropology is the project that I undertook to develop and conduct for community-based peer education and support for ARV treatment adherence (Conrad 1985; Trostle 1988). Promoting ARV treatment adherence could easily be perceived as returning to the early days of applied medical anthropology, when indigenous "cultures" were pathologized as standing in the way of biomedical efficacy and exported development. Also real was the danger of promoting, despite benign intentions, the hegemony of biomedical authority and the technologies of self-care embodying neoliberal values.

However, the specific local contexts of medical and social indifference and abandonment cry out for interpretations that are both nuanced and rigorous. The distinction, first of all, between adherence as allowing greater agency and

compliance as coerced is fragile and easily lost in translation, particularly when the two terms are merged and interchangeable in the Chinese rendering of both as *yicongxing*.<sup>8</sup> In the absence of medical authority, moreover, medical compliance becomes quickly absorbed, from the perspective of the villagers, into blatant political coercion, with which they are only too familiar and which they have learned how to subvert (Scott 1992). The subversive tactics of the weak in this case have to be reversed to allow fulfillment of a far more urgent and relevant “hidden” agenda on the part of villagers, which is no less than resistance to a form of social death. With the nonpolitical appearance of adherence training, my project was to build a political force among the HIV-infected villagers, who could turn their knowledge about HIV infection and the medical treatment available to forestall the onset of AIDS into more powerful demands for treatment and care.<sup>9</sup> Biomedical authority can also inflict harm by admission of biomedicine’s powerlessness, which betrays a reluctance that is politically and economically motivated.<sup>10</sup>

The ethnography that follows is a product of over two years of intensive participation in these issues. I have tried to bridge the gap between description and interpretation, allowing my voice to be one among the many “partial perspectives” that constitute the ethnographic narrative and the many stories that I have heard and witnessed.

### Labor, Blood, and Money

He was arrested on an extortion charge in February 2005, three days after the Chinese New Year, and began serving a six-month prison term after a quick trial. In June of that year, I went to visit him in the small dilapidated county detention center in Henan Province not very far from his home village. A small crowd showed up outside at the gate before the scheduled visitation hour. Among the visitors were his 70-year-old mother, his daughter and only child, who happened to be 70 days old, and everyone in between from his large extended family. Many of his friends came as well. They brought food, cigarettes, money, and hard liquor hidden in a soft drink bottle. I will call him Linjun.<sup>11</sup>

Linjun’s story is one of many that have informed my understanding of how these Henan villagers have experienced the interrelationships among labor, blood, and money. Struggling to give it some measure of narrative coherence, I realized that a good part of my difficulty came from the far greater difficulties that HIV-infected villagers were having with making sense of their own stories. In their desperate confrontations with the local government, acts of violence and retribution seemed random but always worked against them in the end. Here, the term *government* is shorthand for complex configurations of power and interests operating at different scales, full of contradictions and capable of extreme brutality.

Linjun is 38, the youngest of six brothers, all of whom had sold plasma and are now HIV positive. He was the first in his village to discover that he was infected with HIV. In 2000, he was a migrant worker for a construction company in Beijing. His job was to mix ten tons of plaster, bag it, and load the bags onto delivery trucks.

Not many people could do the same amount of such heavy work every day and make as much money as he did, more than 1,000 yuan a month. One day, he was approached by a “blood head” (*xietou*) who made him an incredible offer: 2,000 yuan (about \$250) for a single donation of blood. A company in Beijing was trying to fulfill its quota for voluntary blood donation by paying for blood to keep its employees from the needle.<sup>12</sup> However, in the end, Linjun did not get paid for his blood because he failed the screening for blood-borne diseases. Of the four substitute donors the “scout” had recruited from the construction site, all of whom came from Henan, two were rejected by the blood center for this reason. Linjun was told to go promptly to a hospital for more tests. When he returned a few days later for the results, the nurse told him that he was infected, most probably from plasma donation, with the “AIDS virus.” Immediately, he thought of the “strange illness” that had killed a few young people back in his village, including one of his brothers. Another of his brothers had come down with the same illness. He went back to the village and quietly gathered his immediate family together, his brothers, and their wives and gave them the terrible news. Eight of them took a bus together to Zhengzhou, the provincial capital, for the HIV test. Linjun’s wife was the only one who tested negative.

Between 1992 and 1996, most people aged 16 to 60 in this village of about three thousand had sold their plasma to blood collection centers. When I first went there in summer 2003, almost three hundred villagers and a few of their children had tested HIV positive. By the end of 2004, at least 60 of these had died from AIDS. According to the most conservative estimate released by the Henan government, more than 30 thousand people in this province alone have been infected as a result of plasma donation. Among donors in dozens of villages, which are referred to in Chinese epidemiological reports as “lesion sites,” the prevalence of HIV infection is as high as 45 percent, and there is a far greater number of villages in which the infection rate is around 10 percent.

The crime for which Linjun was punished in 2005 had been committed in 2003. His brother Linhui had been hit by the guards in front of a government building during a quarrel. Linhui checked into a hospital and demanded a large medical compensation for his minor injury. Yielding to threats of retaliation by HIV-positive villagers, the government bureau agreed to pay a generous sum to settle the dispute. This was not the first time that angry and frustrated villagers had banded together to make such demands. The HIV virus in their blood, they realized, gave them a bargaining power they had never enjoyed before. Linjun represented his brother in the negotiation with the government. Although the payment went to his brother Linhui, it was Linjun’s signature that appeared on the receipt for payment, which was used by the government as evidence for Linjun’s conviction for extortion two years later. Initially the police had been after Linhui, as the beneficiary of the settlement, but he had gone into hiding before the Chinese New Year and was hit and killed by a truck as he tried to sneak back to his family on New Year’s Eve.



Many in the village believed, however, that Linjun's arrest was more likely in retribution for the compensation that he had been awarded by the county court for a real and much more recent injury at the hands of the county's firefighting squad. An argument between the head of the squad and an HIV-positive villager over the price of a pedicab ride ended with the villager getting beaten and not being paid. The injured party went to the police, along with several other villagers including Linjun, to file a report. The entire firefighting squad arrived with axes and picks shortly afterward to teach these demanding villagers a lesson. The incident became a political embarrassment for the county government, which had to fire the firefighting squad and grudgingly pay compensation to the victims.

Two months before Linjun's arrest, I had been amazed by the transformation of several large piles of moss-covered bricks into an almost finished two-story house on a lot by the main village road. As was the case with many younger brothers in rural China, Linjun had not received any endowment from his parents in the form of a house or a portion of a house when he was ready to start a family. His parents had already depleted their resources in setting up his older brothers. Much of the money he earned as a migrant construction worker went to pay for bricks to build a new house, but because of his HIV infection, construction had been put on hold. He and his wife had been renting a small room in a commercial building next to a toll station not far from the village on the highway that runs from Beijing to Guangzhou. The compensation for his injury, in addition to the 9,000-yuan government relief fund received by every HIV-affected family still living in mud houses, was what had finally made possible the completion of his new house.<sup>13</sup>

The house seemed unnecessarily large for his small family of three, and he made sure that his roofline was at least two bricks higher than that of his neighbors. When I congratulated him on the house, he sighed and said with bitter resignation in his voice: "What's there to be happy about?" His wife was very visibly pregnant at the time, and he told me that they had already learned that it was a girl but had already decided not to risk infecting his wife by trying again for a boy. Without anyone to inherit the house and not knowing how long he was going to live, he was building the house for somebody else, the man who would marry his wife after his death. But at least his wife and daughter would remain in the village with the rest of his family. The size of the house mattered because he wanted the house, with its solidity, to stand testimony to the liquidated value of his life.

One of the people he hired to build his house was a 55-year-old grandmother who was a close neighbor and distant relative of his. She looked healthy and cheerful in a new and colorful padded cotton jacket and had put on some weight since she had started taking her antiretroviral medication a few months ago. She and her husband were both HIV positive, as were their two daughters and a six-year-old granddaughter. When I saw her the previous summer and urged her to restart the treatment she had given up because of the side effects, she had been thin and weak, and her face, arms, and legs were covered with layers of rash that she

kept scratching. My satisfaction with her remarkable comeback was premature. A few weeks after I left, someone in the village called to tell me that she had been hit by a truck and had died instantly. Upon my return, I inquired about the accident, and the villager who helped negotiate a settlement told me it happened not far from the toll station. My suspicions were immediately aroused that she had intended to risk injury (not death) in search of monetary compensation, because I knew that the trucks leaving the toll station could not possibly be going very fast. On another occasion, I asked this same villager about the size of the settlement for her death, and he replied: "Fifty thousand yuan, not bad!" Hearing this, I had to wrestle with a terrible sense of futility in trying to get these villagers on their medication. My frustration seemed trivial, however, in comparison to their awareness of premature death, an inevitability that strips the enterprise from their lives. Taking the quick exit while leaving behind a useful amount of money for one's family was perhaps really "not bad."

Linjun was a heavy drinker, but for a few months he stopped drinking altogether. I had told him many times that he should give his liver a rest before he started ARV treatment, knowing that he might also be infected with hepatitis C. When he started drinking again, I learned to my disappointment that he had been dry only to ensure having a good-quality baby and had started drinking again as soon as he was sure of his wife's pregnancy. He also took up smoking again in jail after having quit for several years. As no alcohol was allowed in the detention center, smoking was his only consolation, until his friends outside figured out how to smuggle it in to him. "What is there to live for," he smiled bitterly, "if there is nothing to enjoy in life?"

### A Commonwealth of Health

*Investment, yield, and return* are all terms that have increasingly come to characterize China's new economic culture. They have entered the vocabulary and consciousness of even these villagers whose participation in the market economy has highlighted the decline of the value of agricultural labor. Their major asset for market speculation has become, in a sense, "life itself." This is evident in Guolong's story.

Guolong had been bedridden for over almost two months when I visited him in April 2004 in his parents' house in a village about 150 kilometers away from Linjun's. He was 32, had sold plasma many times, and was now completely emaciated. On the little table next to his bed was a small black-and-white television alongside an array of medicines in tiny colorful boxes and bottles. The government-supplied free antiretroviral medicines were hanging unused in a plastic bag on the mud wall behind him. He shook his head when I asked if he was taking the ARV medication and pointed instead at a bottle next to the television. It was Triomune 40, a generic combination of antiretroviral drugs manufactured in India for patients weighing over 60 kilograms. At the time, he probably weighed only half of that



and therefore would be more likely to develop severe side effects from the drugs as a result. His family had to pay 500 yuan for the bottle, which contained a single month's supply, but it had lasted for almost two months. The desperate switch from the free government-supplied regimen to the expensive imported generics was a bet on the potency of the medication that the payment of money would guarantee—there was no other measure of efficacy clearly apparent to them.<sup>14</sup>

When China's economic liberalization first started in the agricultural sector three decades ago, with the introduction of the "household responsibility system" (*lianchan chengbao*) to replace the people's communes, the television that Guolong was watching would have been a luxury item even in an urban household. Economic growth in a few urban parts of China has now surpassed Deng Xiaoping's vision of "modest prosperity" (*xiaokang*) as an annual per capita income of \$1,000. For the still-vast rural population, however, local government officials often choose to cite a declining Engel coefficient, which measures the proportion of income spent on food, as an indicator of good government at the local level. "We are now eating much better every day than the wealthy landlords before Liberation!"—a retired county finance bureau director, now volunteering for an NGO project in an "AIDS village" in Henan, commented as he ate a large bowl of noodles in a cheap restaurant. He had come from a family that had been very poor before the communist revolution. There has indeed been a steady expansion of consumption in rural China since the beginning of the market reforms. Even in households in the primary "lesion sites" of the HIV epidemic in Henan, I have often seen color television sets much larger and far better than Guolong's. But to find out what accounts for this improved standard of living, I only had to spend a little time watching what their local TV stations were promoting: seeds, fertilizers, pesticides, herbicides, and pharmaceuticals. These dramatic commercials were often testimonials by satisfied consumers shot on location. I do not know if any of the medicines on Guolong's small table figured in these commercials. He would not live to give a testimonial. He died a month after my visit.

For many like Guolong, who had hoped to live a better life as consumers, the price was steep. They were in the market for a few short years, as suppliers not of labor but of raw material for a new industry. Media reports in China have focused on the "astounding horror of a plasma economy," describing in graphic detail donors' accounts of dirty needles, reused bags, unsterilized implements, bloody tractor-driven centrifuges, unruly crowds at plasma collection stations, busloads of migrant donors, and the shocking frequency of their donations.<sup>15</sup> The safe distance created by the moral and even physical repugnance in these exoticizing narratives serves to conceal the close connections that this strange economy has with the unremarkable, mundane existence of urban consumers of these accounts.

In June 2000, a 59-year-old retired factory worker with a 16-year history of chronic liver disease was interviewed by a reporter for the *Health Times* in the "economy-class ward" (*jingji bingfang*) of Ditan, a major hospital in Beijing well known for its liver disease program. She complained that her entire monthly

pension of 970 yuan was only enough to pay for two ampoules of albumin, less than a quarter of what was needed for a single treatment; but albumin was not on the list of basic drugs covered by her factory's health plan. The reason she gave for her dependence on this very expensive drug was that she could not eat any poultry, fish, or even tofu. Apparently, she had come to believe that a regular infusion of albumin was necessary as an alternative source of nutrition because of her liver damage, a misconception that her doctors may have even encouraged.

Human serum albumin is the oldest among an increasing array of blood products including immune globulin and coagulating factors obtained from donated or commercially collected plasma through fractionation. This technology was first developed in the United States during World War II (Starr 1998). It made possible the production of large quantities of concentrated albumin, which could be supplied and used far more easily than whole blood or freeze-dried plasma to treat the often-fatal traumatic shock of the wounded. After the war, albumin continued to be used widely, primarily in critical care for its "volume expansion" property. When infused intravenously, albumin functions to draw fluid into the blood vessels by increasing intravascular osmotic pressure and thus restoring the necessary blood volume in the circulatory system. This can reverse or prevent shock that comes from blood loss. In 1996, the global albumin market was worth about \$1.5 billion. However, the mechanical understanding of the fluid dynamics of the role of albumin also led to a search for less costly substitutes that can fulfill the volume expansion function in the care of critically ill patients. In 1998, the *British Medical Journal* published a review of randomized control trials comparing albumin and its substitutes, including normal saline, with a startling conclusion: for every 17 critically ill patients treated with albumin there is an extra death (Cochrane Injuries Group Albumin Reviewers 1998). The sales of albumin fell by as much as 40 percent soon after the publication of this review (Roberts et al. 1999), and the U.S. Food and Drug Administration also issued a warning regarding the risks of albumin use (see Food and Drug Administration 1998). In response, the plasma fractionation industry launched an international "albumin support" program in 1999 (Yamey 2000). An industry-supported meta-analysis of albumin versus its substitutes was published in an American medical journal in 2001, with findings that, according to its authors, "should allay concerns regarding the safety of albumin" (Wilkes and Navickis 2001:161). However, as noted by some commentators, the striking "similarity of some of the results and dissimilarity of the interpretations" between one analysis and another might have sprung from "a priori beliefs, knowledge of pathophysiology, variable cost considerations, and conflicts of interest" (Cook and Guyatt 2001:206). Although controversy regarding the safety of albumin use in critical care has by no means been resolved, no new evidence has since emerged to suggest that albumin offers any clinical advantage over alternatives such as normal saline solution (Delvin and Barletta 2005). With the decline of the albumin market, the fractionation industry has shifted to intravenous immune globulin as its primary source of revenue (Farrugia and Poulis 2001).

Albumin use in China, by contrast, has a much shorter and very different history. As early as the late 1950s, China began to produce albumin in small amounts from placental blood collected in delivery rooms to use it as “human placental serum albumin” in clinical applications. The small amount of albumin produced in this way meant that it was never extensively used as a volume expander. By the 1970s, many hospitals in China had already developed protocols for using saline solutions such as normal saline and Ringer’s solutions to supplement or substitute blood transfusion in surgery and critical care. When I reported the recent albumin versus saline debate in Britain and America in an interview with Dr. S, a retired Chinese neurosurgeon, he thought the debate seemed curiously outdated; from his perspective, the issue had been resolved more than 20 years previously, in part out of necessity because of the persistent shortage of blood for transfusion in China.

Dr. S had only learned of albumin in the 1950s and still remembered the few instances in his own practice when he first used it in the 1970s, when imported albumin became available in his hospital. The patients who received albumin injections before or after surgery were all important local officials: a deputy chief of the prefecture, a chief of the organization division of a county’s Communist Party committee, and the head of the Communist Party branch in his hospital. At the time it was prohibitively expensive; a single ampoule of albumin cost up to half as much as the total cost of a major surgical procedure and hospitalization added together. Nor were there clear indications for its use other than the belief that it would improve resistance against infections, aid the healing of surgical wounds, and perhaps speed postsurgery recovery. This luxury of albumin treatment with vague clinical benefits was offered to officials not for the purpose of making money, Dr. S insisted, but, rather, in the context of the informal gift economy of the socialist era, to appeal to their sense of privilege in the hope of drawing favors from them in the future.

The market only exerted its magic in the 1980s when Chinese-made albumin began to reach Dr. S’s hospital, often with handsome kickbacks from manufacturers and pharmaceutical wholesalers for doctors who prescribed it. China’s health care sector had by then started its own economic reform, with the prescription that “health services should also obey economic laws” (Cao 2005:6), as it was unequivocally announced at the time by the minister of health. Public hospitals and other health care facilities, which previously had been supported by state subsidies, now had to compete in the market and generate income for themselves largely through the services they provided and the drugs they sold in their in-house pharmacies. In Dr. S’s hospital, “production quotas” were set for each clinical department in a manner similar to the “household responsibility system” in the agricultural reforms, and the personal income levels of staff members fluctuated with how well quotas were met and how much above-quota income they could distribute among themselves. In this context, albumin quickly became a favorite drug at his hospital, prescribed often in the absence of any specific indications to patients who

were convinced of its restorative efficacy and could afford to pay for this luxury. In 2003, after his retirement, Dr. S witnessed the care of two close relatives of his, who were both terminally ill with metastasized cancer. Both died shortly after surgery but not before their hospitals in Shanghai had managed to persuade them to spend large amounts of money on albumin injections, which Dr. S thought were entirely useless.

Although critical of the profit motive driving his colleagues' generous albumin prescriptions, Dr. S was, on the other hand, proud of the laparoscopic surgery unit that he helped set up in his own department. With the "minimally invasive" alternatives that this unit provided, the department could reap fees often ten times that of conventional surgical procedures. As long as there was a market for these alternatives, he also believed, the extra cost on the part of the patients was worth every penny because they had fewer complications and presented better postsurgery recovery, exactly the benefits for which albumin was prescribed.

Since this market-driven transformation began in the 1980s, China's health care sector has grown at a pace even more impressive than the nation's economy in general and has far outstripped the increases in income for the majority of both urban and rural populations. The years from 1980 to 2003 saw a fifteenfold expansion in the total expenditure on health, from 14 billion to 663 billion yuan, while in the same period government spending, both in proportion to the total expenditure on health and in proportion to the total income of public hospitals and other public health facilities, dropped sharply. With as many as half of all urban residents and more than four-fifths of the rural population lacking any form of health insurance, the vast expansion of health care costs has come primarily from private payment for health care (see Cai 2003, 2004; Wang 2003; Wei Yahua 2005). Chinese health economists have identified a fundamental conflict of interest in which the provider has become a seller who makes choices for the buyer of medical services, and this inevitably puts the consumer's welfare in jeopardy (Cai 2003, 2004; Gao et al. 2002).

Marketization has also undermined the priority on prevention over treatment that had provided the framework for the public health agenda in China under state socialism. The shift is nowhere more evident than in the emergence of a plasma fractionation industry out of the network of six regional research and production centers for vaccines set up by the socialist government early in the 1950s. These facilities, known as "research institutes for biological products," had been funded and supervised directly by the Ministry of Health until their conversion into the China National Biotechnology Corporation in 2003.<sup>16</sup> Early in the 1980s, all six institutes, along with a few military hospitals and blood centers, began to set up their own commercial plasma collection stations using the technology of manual plasmapheresis first adopted and standardized by the Beijing Institute of Biological Products. This method of collection, which separates plasma from whole blood and returns the blood cells to the donor, was crucial for the development of a large-scale plasma fractionation industry in China, according to a senior researcher

at the Beijing Institute, because it would “make possible the collection of large quantities of plasma from small numbers of donors” (Liu and Ji 1989:4).<sup>17</sup> By 1985, these research institutes produced more than a ton of albumin, fractionated from over 50 tons of plasma from thousands of donors who sold their plasma to the dozens of collection centers all over the country. As both the high price and the high demand for albumin in China’s health care market had already been established for imported albumin, the profitability of this nascent national industry was enhanced by cheaper native raw material and the low cost of production using an outdated fractionation method.

The plasma fractionation industry in China was further boosted by a decision by the Ministry of Health in 1984 to restrict the importation of blood products from “capitalist countries” where homosexuality and intravenous drug use had become serious social problems. The decision was made specifically to keep HIV/AIDS outside China’s borders. In the same document the ministry also promises to build China’s own fractionation industry with a capacity for 12 tons of albumin every year to ease the supply shortfall that the restriction would create.<sup>18</sup> A year later, the ministry upgraded the restriction to a complete ban on the importation of all blood products with the single exception of albumin.<sup>19</sup> The ministry’s change of mind regarding albumin shows that the Chinese fractionation industry was not yet in a position to take over the domestic market for albumin. It also appears that the Ministry of Health was prepared to use its administrative authority to grant to its own “cash cows” a monopoly in the lucrative albumin market.

In the decade that followed, the number of fractionation plants grew rapidly. Many newcomers to the industry were companies formed by individuals who had previously worked for the ministry’s institutes but decided to give up the security of state employment for the prospect of greater rewards in entrepreneurship. As demand for “source plasma” grew, new collection stations mushroomed all over China.<sup>20</sup> Most collection stations were set up in county towns, primarily because of their proximity to rural areas where donors could be more easily recruited. They were operated mostly by local public health facilities such as local disease-control stations and health centers for women and children and by the less profitable hospitals in the health care market, including small county hospitals, hospitals of Chinese medicine, and clinics funded by failing state enterprises and the military. Profits from plasma collection provided a much welcomed sideline income. By 1995, the numerous licensed and unlicensed collection stations in Henan Province alone would easily have supplied enough plasma to make the 12 tons of albumin promised by the Ministry of Health.<sup>21</sup>

We do not have any reliable information regarding the size of the plasma economy at its peak. However, with the fragments remaining after the Ministry of Health began to regulate and reduce the industry in the aftermath of the outbreak of HIV infection among rural plasma donors in Henan in 1995, we can get a sense of the frenzy of the plasma rush of the early 1990s.<sup>22</sup> In 2001, after all the plasma collection stations had been shut down in Henan Province, the ministry inspected

the remaining 223 plasma collection stations in the country and found that only 156 of them were operating in conformity with government regulations. The rest were subsequently either shut down or asked to improve their compliance before they could be relicensed (see Zhao and Yao 2005). In 2004, according to the allocation of source plasma for out-of-province fractionation plants by the Ministry of Health, there were 13 plasma-exporting provinces in China, supplying a total of 3,640 tons of plasma collected within their borders to 18 outside fractionation plants. The southwest province of Guizhou was the biggest exporter, with an allowable quota of 1,480 tons, followed by Guangxi, Hunan, and Jiangxi.<sup>23</sup> The biggest purchaser turned out to be a fractionation plant based in Henan, with a quota of 900 tons. This company, originally set up in 1992 as a subsidiary of a government-supervised research institute for biological products, has now become a forerunner in the industry in terms of its production capacity measured by the amount of plasma it can process annually. Adding the quota of 180 tons for another fractionation plant in Henan, the province has become the leading importer of source plasma. The current processing capacity in the province gives us a sense of the scale that plasma collection must have reached in the province early in the 1990s, when the province was a major supplier of source plasma for the industry.<sup>24</sup>

Among the over 30 fractionation plants currently licensed in China, the leading five (one in Henan, two in Sichuan, and two in Shanghai) processed as much as two-thirds of all plasma collected in 2004, while the rest are much smaller in scale, and many will surely be pushed out of the industry in the fierce competition for access to capital, raw material, and market share. The survival of a fractionation plant now depends on how successfully it can pursue the strategy of *volume expansion* (*kuorong*), a term used by an analyst of the plasma products industry (see Wei Shaofeng 2005). In other words, the capacity for processing large volumes of plasma and the ability to derive more marketable products from the same raw material are key factors for profitability. Both of these, however, require heavy capital investment for high-capacity and state-of-the-art technology. To ensure the performance of the money raised in the capital market for this investment, the fractionation plant has to procure sufficient amounts of source plasma to keep its equipment running at full capacity. Any sign of “shock” (to extend my analogy between blood and capital) caused by an insufficient supply of plasma can quickly lead to capital flight and business failure.

This pun on “volume expansion,” derived from a physiological function of albumin as a blood product in medical care, powerfully brings out the ironies of the Chinese health care market. The literal fluidity of plasma bears out the perfectly metaphoric fluidity of capital, and it is in the movement of both that the value of health is realized in both fiscal and biological terms. Fluid money from the capital market sustains the life of the industry. The industry in turn becomes a vital part of the health market by converting a surplus fluid component of human blood into products with a market value. This valuation, however, is profoundly ambiguous. On the one hand, the industry has to turn for its raw material to a population



“surfeit” (Anagnost 1995), rural residents who have few resources other than their labor with which they can participate in China’s new economy. In the marketized health care system, on the other hand, where therapeutic potency has become increasingly measured by the cost of the drugs prescribed and procedures applied, the high cost of blood-derived products alone would bolster beliefs about their life-sustaining magic. Not surprisingly, albumin has in recent years been one of ten drugs that have brought the highest profits to Chinese hospitals.<sup>25</sup> We might well wonder whether albumin has been prescribed for volume expansion in the medical sense or for a different kind of “expansion” in hospital profits.

A few fractionation plants have gone public in the last few years and have issued stock shares to raise money for their expansion. Invariably they have presented the industry’s tremendous potential for growth by arguing that China, in its current state of underdevelopment, is an albumin-starved nation. In their pitch to potential investors, they claim that not only does the annual albumin consumption by the nation’s vast population fall short of the 0.2 to 0.3 grams per capita that is the standard in “the developed countries in the West,” it does not even live up to the minimum of 0.1 grams per capita recommended by the World Health Organization (Beijing Tiantan Biological Products Corporation Ltd. 1998).<sup>26</sup> This deplorable state of poverty, according to many financial advisers, would be alleviated with the growth of China’s national economy. Nowhere have I been able to find the evidence of this specific recommendation for albumin by the WHO cited above; in fact, albumin was taken off its list of essential drugs in 1999.<sup>27</sup> From the industry’s perspective, it seems that the nation’s gross domestic albumin consumption has somehow acquired a GDP-like quality, capable of measuring the nation’s health and wealth at the same time.

Sadly, this double valence of albumin consumption with health and wealth was borne out in an adverse direction by two HIV-infected plasma donors I encountered in Henan. Both had also been infected with the hepatitis C virus through plasma donation. They had gone deeply into debt to purchase albumin as “nutrition shots” in the months before they died, not from AIDS but of complications from hepatitis.

### Supply Side Economics

A major fractionation company in Henan informed its shareholders in its 2004 Annual Report that the company’s net profit rate suffered a 4.99 percent decline compared to the previous year. This decline was primarily attributed to an extra value-added tax payment resulting from the new stipulation issued in August 2004 by the State Administration of Taxation that “the purchase of human blood does not belong to the purchase of tax-free agricultural products and shall not be calculated at 13 percent of the purchase price for the deduction of purchases VAT as applies to agricultural products.”<sup>28</sup> We should be less concerned here with

the industry's tax complications than with the question: What would make human blood an "agricultural product" in the first place?

If we follow the plasma industry's logic, the answer to this question can be very simple: Chinese raw material for fractionation comes directly from agricultural producers. This careless assumption reveals a pragmatic and cynical blindness to the distinction between what agricultural producers grow in the field and what they grow inside their bodies. But at the same time, the answer also points to the single-most important demographic determinant in the epidemiology of HIV/AIDS among commercial plasma donors in China: they are overwhelmingly agricultural producers.

Economic reform in China began first in the agricultural sector late in the 1970s. The introduction of the household responsibility system to replace the previous collective system of production was perhaps the most prominent aspect of the agricultural reform (Oi 1999). Widely credited for the rapid agricultural growth during the initial phase of the reform from 1979 to 1984, the new system was believed to have provided incentives to agricultural producers to improve productivity by "linking remuneration to output" (Ash 1988:537). This economic logic became the template for liberalization in other sectors of the Chinese economy, including health care.

The impact of decollectivization on agricultural growth, however, should be more carefully examined. First, the substantial increase in income for agricultural producers in the early years of reform was clearly a result of the massive redistribution of money by central planners, rather than the entrepreneurship of a homespun "petty capitalist" (cf. Gates 1996) variety. As if to purchase the certainty of success for an ideologically dubious economic experiment, the government significantly raised its procurement prices for agricultural products from 1979 to 1984 but kept retail prices low for urban consumers. Cutting in the opposite direction, the "price scissors" that had been used to extract agricultural surplus to build socialist industrialization soon cut a sizable hole in the state budget (Knight 1995; Sah and Stiglitz 1984). The slowdown in the rate of income increase in the years that followed can be clearly linked to the government's decision in 1985 to withdraw this significant "subsidy" for agriculture, ostensibly to allow the market to play a greater role in regulating the prices of agricultural products (Ash 1992; Hsu 1984; Lin 1992). Second, a regional pattern of rural income disparity emerged in the later years of agricultural reform. From 1985 to 1990, for example, the heavily agricultural provinces in central China, including Henan, suffered a decline in rural income levels, while the coastal provinces in southeast China enjoyed rising income. This disparity suggests that the expansion of rural industry was becoming the primary source of rising income levels in the coastal provinces (Rozelle 1996). Third, as noted by economist Justin Lin (1992), the sharp increase in the use of chemical fertilizers contributed substantially to the accelerated growth in agricultural output early in the reform period.<sup>29</sup> Many of the "developments in agricultural technology" necessary for manufactured fertilizers to have an impact

on crop yield, in terms of both effective irrigation and “high yielding fertilizer responsive [seed] varieties,” had already been accomplished in the pre-reform era of collective agriculture (Stone 1988:818). The improved provision of chemical fertilizers at the beginning of the reform period, it seems, was designed to allow China’s agricultural producers finally to reap the benefits of a long-planned “green revolution.”

But the benefits for farmers turned out to be elusive. Individual farming households are much less capable of absorbing the impact of price fluctuations in the market both for what they produce and for what they have to purchase in order to produce. They have also become more vulnerable to changes in weather conditions in recent years because of the decrease in effectively irrigated areas resulting from the exhaustion of water resources and the lack of maintenance of public irrigation works built during the socialist period. In the context of economic liberalization, technological developments have only facilitated the transformation of traditional labor-intensive agriculture into a cash-intensive enterprise.

The shift was brought home to me most poignantly by a comment about the “fakeness” of today’s wheat that I heard one morning in October 2003, during the short wheat-sowing season before the “First Frost” (in the Chinese lunar calendar). I was staying in Lingjun’s village with the family of his second cousin, Lingshu. At the crack of dawn that morning, I went with Lingshu to his family’s “responsibility land” in the village field after helping him load three sacks of ammonium bicarbonate and wheat seeds bagged in used fertilizer sacks onto a small pushcart. On the way, an old villager I had never met before dismounted from his small tricycle trailer and started a conversation with me. While Lingshu was striding back and forth on a long tract of land, we stood talking and admiring the rhythm and almost mechanical precision with which Lingshu scattered fistfuls of the white pellets that he took from a large bamboo basket hanging on his left arm. The old man then blurted out: “We are now growing fake wheat! It tastes bad and does not give you any energy.”

When he was a boy 50 years ago, he remembered, wheat tasted much better and gave far more energy. Back then the crop yields were much lower, less than a quarter of today’s average, but his family had at least four times more land per person to farm. They saved the seeds from the harvest, used oxen or man power to draw the plows, and fertilized the field with manure. His father was a very strong and capable farmer, who always carried heavy loads on a shoulder pole over long distances without resting. “Nobody has that kind of strength anymore,” he complained, “because the wheat we eat today is all puffed up with chemical fertilizers!” Loaded on the back of his tricycle was a fertilizer sack filled with wheat harvested in May. He was on his way to the mill in town to make flour. Most villagers store the wheat they harvest in their own houses rather than selling it and buying flour with cash. For them, the value of wheat turned into cash still does not give the same assurance as unadulterated wheat, which remains the most vital part of their household consumption.

Lingshu had to borrow 300 yuan before he could start sowing his family's land with winter wheat: 255 yuan for three sacks of fertilizer, which he emptied that morning on the family's three separate tracts of land totaling 8 mu, and 45 yuan for the cost of the tractor he hired to plow the field at 30 yuan per mu, with a promise to pay the rest after the harvest. Without any money to buy seeds, he took 400 jin of the wheat he had harvested the previous summer to swap with a neighbor who had a good harvest from the purchased seeds.<sup>30</sup> Most of this village's land is in a low-lying area that easily becomes water logged after heavy rainfalls in summer and fall. In a better year, Lingshu would have bought wheat seeds, if only to make sure that the money used for plowing and fertilizers was well spent. However, flooding had soaked his fields in knee-deep water for more than three months when it started to rain heavily after June. Lingshu and his neighbors had already harvested the year's wheat and had planted their land with the crops they depended on for cash: soybean, corn, sesame, and peanuts. After losing these cash crops Lingshu figured that by using his neighbor's seeds rather than purchasing them, he had saved his own family between 60 and 280 yuan. To have an adequate harvest, these wetter fields required twice the usual amount of purchased new seeds and even more if they used seeds saved from the previous year. However, Lingshu was also aware of the trade-off; he had to set his expectations low for the next harvest because wheat ordinarily used for food might fail as wheat seeds.<sup>31</sup> Many of his neighbors were caught in the same dilemma. As I sat down with Lingshu and his wife Xiulan to add up the costs for the sowing season, Lingshu kept converting cash into wheat. The conversion was easily calculated with the market price of wheat at 0.5 yuan per jin: 300 yuan became 600 jin of wheat. He commented wryly: "This was how much wheat I put back to the land this morning." The actual market price at the time for wheat had gone up to as much as 0.7 yuan, but nobody in the village rushed to maximize their income by selling the wheat they were storing in their houses. The price of flour had gone up much more than that of wheat.

A few days later, when I arrived at the closest train station in a city about a hundred kilometers from the village, the large square in front of the station was already fully packed with farmers migrating back to construction sites in big cities, factories in the east, and coal mines in the west, carrying their belongings in the same colorful fertilizer sacks I had just seen in the village. As the train began to board passengers, the whole lobby roused into motion. Under a barrage of shrill orders blasted from the station speakers, the dark, shapeless crowd formed into several long columns, moving streams of fertilizer sacks through the ticket gates.

Lingshu and Xiulan were both in their fifties and had stopped seeking off-season jobs in the city a few years ago after being rejected several times for being too old. They were among the few people of their age in their village who had not sold plasma. In 1984, when they were young and strong, they took their two sons, nine and six years old, to Hubei Province where they rented 200 mu (approximately 35 acres) of land near Wuhan, a big industrial city, to grow rice, watermelon, and cotton. The land was available because local farmers had left to work in factories

in the city. Lingshu and his wife had left their village in part because they wanted to have another child, preferably a boy, but the third child, born in Hubei, was a girl. When they returned to the village in 1998, the plasma collection stations had all been shut down. Their older son was not so lucky. He had returned to his natal village a few years earlier to finish school because his parents could no longer pay the steep out-of-province fees to keep him in school in Hubei. He walked into a plasma collecting station once in 1992 when he was 17. He spent the 45 yuan he received for the sale of his blood on a nice restaurant meal with a few of his friends. He came down with high fever and diarrhea a few days later. He tested HIV positive in 2000, soon after Lingjun came back from Beijing that winter.

Thanks to good weather, Lingshu's winter wheat harvest in 2004 turned out to be better than he had expected, totaling almost 4,000 jin and filling more than 20 fertilizer sacks. The yield was 500 jin or 250 yuan per mu. Adding together the 240 yuan he had paid to hire a combine for the harvest, the fertilizer he added in the spring, and 480 yuan in taxes, the cash cost for the wheat crop turned out to be almost 220 yuan per mu, equivalent to 440 jin of wheat. The balance of the harvest, 60 jin, was just a little more than the seeds that had been sown in the field. The amount of money Lingshu had spent to grow the crop would have bought him almost as much wheat! Some of his neighbors in the village did better. They bought new seeds, used more fertilizers, and brought in as much as 800 jin of wheat per mu. But if the costs were converted to wheat and subtracted out of the harvest, the net yield would not be much better than the better-tasting "genuine" wheat of half a century ago that the old villager told me about. Normally, few villagers would actually do this kind of calculation. They grow wheat to feed themselves and rarely expect to make a profit out of it. Likewise, few would put a value on the labor they spend in the field. "Better think of it as doing exercise!" I often heard this joke. The value of agricultural labor in China's new economic configuration has become increasingly dubious.

After the wheat was cut but before the fall crops started to grow, the bare fields revealed small mounds of earth under which the dead were buried. Many visitors to the "AIDS villages" in Henan have been struck by the numerous mounds they saw in village graveyards, without realizing that most of what they saw are not the graves of those who have died of AIDS in recent years. These are the older, more established graves, which "grow" as cartloads of earth are added to them year after year, trees are planted on their tops, and headstones are erected years after the burials. They are monuments to the hope and prosperity of the descendants. However, the villagers who die of AIDS are buried by aging parents and young children. The mounds marking their tombs are small, merely the very earth displaced by their coffins. If the coffins collapse before the customary tomb-sweeping three years after the burial, the mounds sink back into the field, hardly visible to the eyes of a visitor.

In one home, I saw the tablet of a distant ancestor prominently displayed on the offering table against the south wall in the central room of the house. On the wall

behind the tablet was a lineage genealogy. The ancestor had been a court official in the Qing dynasty hundreds of years ago. When our conversation moved to the topic of tombs, the villager cited a classical phrase: "The house below the ground determines fate, and the house above the ground determines enterprise." Choosing an auspicious location for the tomb, he explained, was even more important than deciding where to build one's house. He was, I realized, giving me his version of the standard anthropological interpretation of ancestor worship in traditional Chinese agricultural society (see, e.g., Baker 1979). As I was not in an anthropological mood at that moment, I thought to myself, "You are blaming your ancestor for your own unsuccessful enterprise." Had his prominent ancestor not purchased land for himself and his descendants in the village, they would not all have been condemned to the fate of being agricultural producers in China's new economy, fated to pursue the unprofitable enterprise of wheat farming.

The exchange between people and land, as between labor and food, has now become irreversibly mediated by money and things that have to be purchased with money. Increasingly, money has replaced and displaced labor itself and rendered the people in the exchange redundant. To maintain the exchange between people and land, the displaced labor has to be liquidated in the market, despite all its uncertainties. When the agricultural producers, bypassing the fruits of their labor on the land, alienate the liquid part of their blood in the market, liquidation becomes immediate and literal. Plasma in a cash-starved agricultural economy becomes cash, by virtue of the demand for albumin in a health industry hungry for volume expansion.

In the moral economy of blame, quite different culprits have been identified for the HIV epidemic among rural plasma donors in rural central China.<sup>32</sup> For the government, the villains are the "blood heads" who acted as human agents for the spread of the virus: they recruited donors, bussed them from one collection station to another, and brought illegal plasma harvesting into the villages. A few audacious activists have pointed the finger at the biggest blood head of all, the head of the Bureau of Health in Henan, who personally promoted commercial plasma collection in the province. In a secret document leaked to an AIDS activist, the Health Bureau builds its case on the evidence of viral genetics to place the blame on intravenous drug users from border provinces in the southwest for contaminating the pristine pool of donors in China's agricultural heartland.

The tenuous line between deserving and innocent victims of the epidemic is easily blurred even in sincere expressions of sympathy for the HIV-infected rural plasma donors. Everyone seems to agree that poverty was the ultimate cause of this tragedy. However, poverty has also been viewed as a symptom of a moral defect attributed to these twice-liberated agricultural producers. Liberated first by socialism from the fetters of "feudal society" in 1949 and then again from collective agriculture with the return of a market economy in 1978, they had nonetheless chosen a most "unnatural route" to wealth. Many villagers were resentful of purportedly sympathetic stories in the media of how some had gotten rich and built



new houses with their blood money only to be struck down by AIDS in the end.<sup>33</sup> The moral censure that these stories imply is clear: poverty comes from a lack of industry and a willingness to sell one's blood for money.

A number of journalists, activists, and NGO workers have confided to me that the people in the "AIDS villages" that we visited appeared to them to be lazy. For example, as one journalist pointed out to me, the villagers in Lingjun's village did not plant their wheat in neatly spaced rows as they do in other places. But he did not know that in swampy land, wheat is overwhelmed by weeds if not planted densely. In another county where the quality of the land is much better but the number of HIV-infected plasma donors is also much greater, the NGO workers who volunteered in the ARV treatment-adherence program I conducted complained to me that the villagers had not properly thinned out the corn to increase the yield. I found one reason for this from Lilan, an HIV-positive villager whom I recruited as a peer educator for the treatment-adherence project in her village. She took me to the brick house where she was living with her two sons. Lilan was 36, and her husband had died of AIDS in 2001. She came from a nearby village but had first met her husband in a factory where they both worked making name-brand handbags 15 years ago in the south coastal province of Guangdong. The house was built largely with the money they had saved from working in the south after they got married. She now farms three mu of land but spent much of her time making firecrackers at home, which could bring in as much as 4,000 yuan a year after expenses. "I will not waste whole days thinning out the corn in my field," she explained, "when I make far more money every day making firecrackers."

Not every HIV-infected rural plasma donor was as fortunate as Lilan, living in a village well known for this profitable sideline. Economic success in the reform era is measured in terms of rising consumption of consumer goods. For villages lacking other forms of economic opportunity, the blood economy could stimulate consumption with the cash paid out to the donors. They could never have imagined that their end of the bargain would be a disease that would take away their physical strength. Among the earliest symptoms of the progression of HIV disease, and the one most keenly felt by these hardworking villagers, is fatigue. When they had allowed their blood to be borrowed and returned through a process referred to as "blood transfusion" (*shuxue*), they had been told that they were making money out of a useless part of their blood, which was renewable and inexhaustible like well water.<sup>34</sup> The beer-colored plasma does not even bear any resemblance to real blood, as many collectors would not hesitate to point out in an effort to allay anxieties over permanent health damage from frequent donations.<sup>35</sup> The irreversible loss of their labor power was a shocking price to pay for money they had "bought" with plasma years previously.

Soon after the government began to supply free generic antiretroviral drugs to the infected villagers in 2003, many began to suspect that it was a plot to hasten their deaths. Fatigue, the most common of the side effects of the treatment, was already

strangely familiar as a symptom of disease. In addition, nausea and vomiting took away their appetite or made it impossible to keep anything down; dizziness and sore muscles further weakened their bodies. These common side effects were experienced as life threatening by these agricultural producers, exactly because they seemed to assault the most essential dimensions of their lives: food and labor. Often they would not give the treatment enough time for some of the short-term side effects to subside before they would cut their doses or stop taking the drugs altogether.

The lack of treatment delivery, which was owing to the collapse of the rural health care system during the reform era, however, is only part of the reason for the failure of the program. The villages that saw the greatest decline in participation and adherence were all well-known "AIDS villages," favored not only by journalists, AIDS activists, and NGOs but also by pharmaceutical manufacturers and an army of individual practitioners of traditional medicine chasing lucrative dreams of finding a cure for "the plague of the millennium" (*shiji wenyi*). Major research hospitals recruited clinical trial subjects from these villages to fill their purchase orders from pharmaceutical developers. In these villages, the government-supplied ARV drugs, which promised only the suppression but not the eradication of the disease, competed poorly with the plethora of free samples of hope, provided by remedies of uncertain efficacy but far more easily ingested, without the pain of the dreaded side effects, especially if the recruited clinical trial subjects were rewarded with free trips to Beijing to have their blood samples taken, free meals, and even small sums of money for their participation.<sup>36</sup>

The diseased bodies of HIV-infected villagers are now brought into economic circulation, resulting in greater morbidity and mortality in high-profile "AIDS villages" where recruitment for clinical trial subjects is the most intense. This epidemiological pattern makes a mockery of the compassion and hope that highly active antiretroviral treatment, or HAART, is meant to inspire. The parallels that one could draw among the circuits of value relating to the out-migration of rural labor, "source plasma" collection, and clinical trials are stunning. Construction companies relied on "labor contractors" (*baogongtou*) from the villages for their supply of workers; plasma collection stations used the help of blood heads (*xuetou*) to recruit and transport donors. Both of these Chinese terms share the character for "head" (*tou*). Likewise, infectious disease hospitals supplied clinical trial data for pharmaceutical development with the assistance of the same kinds of intermediaries from among HIV-positive villagers. Singling out the blood heads for moral condemnation only serves to conceal the interlinked utility of labor, blood, and disease that agricultural producers can supply in the market. More often than not, blood heads are victims too.<sup>37</sup>

### Conclusion

In the central room of Yuhua's house, I saw a large basket of wheat with a measuring bowl in it and wondered if he actually ate boiled grains of wheat like rice. In 2000, when he was diagnosed with HIV infection, his wife left him

and his son, who was barely a year old. They had since been living with Yuhua's father, who would soon turn 80. Pointing to the slice of watermelon he had just given me, he smiled and said: "We use wheat to buy things from neighbors here." The bowl measured 2 jin of wheat, the equivalent of 1.5 yuan, exactly what he had paid a neighbor for 5 jin of watermelon priced at 0.3 yuan per jin. Traveling vendors sometimes accepted wheat as payment. The village is not very far from Zhengzhou, the fast-expanding provincial capital of Henan Province. Many of the farmlands near the village had been converted to industrial parks in the last few years. Nobody in his village, as far as Yuhua could tell, ever sold plasma, and he was the only one infected with HIV, from the single unit of whole blood he received at the local hospital in 1995 after surgery. In 2001, Yuhua sued the hospital and was awarded 300,000 yuan by the court. Soon after his diagnosis, he was enrolled in a clinical trial for an experimental traditional drug at a prestigious hospital in Beijing.<sup>38</sup> After he switched to the government-supplied antiretroviral drugs, the money had allowed him to take regular trips to Beijing for tests and checkups at the same hospital. After searching in vain for a way to preserve the value of the money he had deposited in the bank, he decided to go back to farming his family's three mu of land and to use the wheat he harvested for daily necessities and the settlement money for treating his disease.

I was struck by the clarity with which Yuhua kept separate the money he earned from his labor on the land and the money from the settlement for his HIV infection. This separation could not have been more sharply marked than the difference between wheat and cash. Both are exchanged, but each exclusively sustained one of the two opposed realms of Yuhua's life that he was trying to keep separate. I cannot think of a more powerful commentary on the transformations of value that I set out to elucidate in this article.

I have examined the economics of the demand and supply of one particular commodity, human plasma collected from agricultural producers, in the context of China's market liberalization and economic growth in the last quarter of a century. This exercise has yielded an anthropological epidemiology of HIV infection among rural plasma donors. Poverty as measured by socioeconomic indexes serves poorly as a causal explanation for the epidemic.<sup>39</sup> On the contrary, it is China's economic liberalization, initiated to develop the nation's economy, raise the standard of living, and be guided by a broadly shared conviction in the efficacy of "economic laws," that has created the social and technological conditions for the emergence of a market for human plasma "harvested" from a specific population of agricultural producers. The spread of HIV infection within this population is to a large extent "iatrogenic," that is, it has resulted from the demands for economic development following the transformation of China's health services into a fully marketized health industry.

The "commodification of the body" (Sharp 2000) here takes a specific form, I argue, which transforms fluid "body parts" (plasma) into a form of "commodity money" that circulates and derives value in multiple spheres of market exchange.

The existence of “commodity money” does not necessarily indicate a lack of complexity or sophistication of economic activities and development. Rather, it reveals a persistent ambiguity inherent in any commodity, money included, between exchange and use values.<sup>40</sup> As I have illustrated, this ambiguity of valuation changes as plasma flows from the supplier to the consumer in a chain of exchanges, driven by different kinds economic necessity. Paradoxically, for plasma to leave the body of its source supplier—that is, to become a commodity—its use value has to be suppressed, eclipsed by its value realized in exchange for money. In this respect, plasma for donation bears an affinity to wheat and can supersede wheat as commodity money. The use value of plasma, when it reemerges as raw material for the fractionation industry, however, is already anticipated and predetermined by the exchange value of the derived products in the health care market.<sup>41</sup> For the end consumer in China, plasma-derived products—albumin in particular—have undergone the transformation from “Veblen goods” to “Giffen goods,” from luxury to necessity, deriving their supposed therapeutic efficacy from the magic of the market.

The ease with which I can articulate this epidemiology in economic parlance, however, should be problematized to challenge cultural anthropology in two related areas of research: the study of the cultural dynamics of economic ideology and the research on emergent forms of biotechnology. The debates in anthropology between “formalists” and “substantivists” more than 30 years ago produced more animosity than insight. The central issue was whether “economic rationality” as conceptualized in Western academic economics should be seen as universal or as shaped by culture (see, e.g., Cook 1970; Dalton 1969). However, determining “how natives think” can be a very tricky endeavor. The starkly economic calculus that has spelled ruin for Henan villagers can nevertheless powerfully colonize their consciousness. China’s economic liberalization has not given them any power to “invest,” but it has given them profound frustration over the absence of this power. The question, then, is not one of “embedding” but, rather, how economics as ideology (i.e., “culture”) should be reconceptualized in anthropology. Our theory, for example, should tackle the apparent contradictions between the marches of neoclassical economics in one part of a globalizing world and resistance to neoliberalism in another, both as cultural phenomena.

The economic logic that sanctions the extraction and circulation of human plasma as an “agricultural product” in the value-adding production and consumption of pharmaceuticals has not only afforded us with a metaphor for social criticism and active resistance. The increasingly productive symbiosis between capital and new biotechnology is also sustained by this logic. Encouraging recent research in anthropology has taken up the new theoretical challenges posed by this symbiosis (Franklin and Lock 2001b). One way to conceptualize this relationship, as suggested by Charis Thompson, is to see it as ushering in a brave new “biotech mode of (re)production” (Franklin and Lock 2001a:8) that fuses agriculture and biology, on the one hand, and breaks down the division between production and reproduction,

on the other, allowing capital of a “promissory” nature to invade and transform life itself into speculated economic value. The emergence of biotechnology narrowly defined as that which operates at the subcellular level is recognized as the decisive moment for this new mode of fused production and reproduction, which has profound social and cultural implications for anthropology. Other anthropologists, by contrast, have examined broader issues such as the ways in which cultural justifications are mobilized to allow flexible exploitation of diseased bodies in poverty by “offshoring” clinical trials for pharmaceutical development (Petryna 2005). My ethnographic investigation articulates these insights but also insists that local configurations of economy, technology, and social relations are far more decisive in creating and shaping particular sites and modes in the transformation of value. Economy is not just “served” by culture; it *is* culture and should be brought into critical focus in cultural anthropology.

### Notes

*Acknowledgments.* Many people have given me help and encouragement or worked with me during field research for this article. I wish to thank them, especially Li Tuo, Bao Kun, Lu Guang, and Ma Yunlong for allowing me to share their extensive social networks, which helped me locate the various sites of this research. I also wish to thank Linda Pears at Médecins sans Frontières-Belgium’s HIV/AIDS clinic in Hubei and Eve Lee at Ford Foundation’s Beijing Office for assisting me in shaping and carrying out the ARV treatment-adherence peer-education and support project in Henan, as well as the Ford Foundation for providing financial support for the project. Thanks also go to Liang Jun and her colleagues at Center Community Education, an NGO based in Henan, for their dedicated and enthusiastic participation in the project, and to Ren Kanghong, Wang Yunhua, and many HIV-positive villagers for their warmth, courage, and generosity. My gratitude goes to Margaret Lock at the Department of Social Studies of Medicine at McGill University, John Leavitt and Gille Bibeau at the Département d’anthropologie of Université de Montréal, Weng Naiqun at the Institute of Sociology of the China Academy of Social Sciences, and Ann Anagnost at the Department of Anthropology of the University of Washington for inviting me to present earlier versions of this article, as well as to the audiences who gave critical feedback on these occasions. Mary Scoggin’s intellectual companionship and unflagging support have been indispensable. I wish to thank the three anonymous reviewers for *Cultural Anthropology*, with evidence of their critical engagement they will recognize in this final version. Finally, my gratitude goes to Ann Anagnost, for an intellectual conversation that began before I started writing this essay and continued on the many occasions we met on either side of the Pacific and for her astute editorial advice and warm support.

1. However, this acknowledgment falls far short of giving us a clear picture of the size of this epidemic and where the infected are located. I shall point out only one inconsistency in the official figures. If the estimated total cases of infection by the end of 2004 was one million, there should be about 250,000 people infected through the sale of plasma. But so far we have only accounted for the 30,000 reported by the Henan government, and the Chinese government has not acknowledged other sites of HIV occurrence that are related to plasma donation.

2. In 2002, I asked for help from my academic friends in Beijing, who introduced me to local officials in a region in Henan as a cultural anthropologist but told me not to mention my interest in the epidemic, hoping that I would somehow work my way into a village with

HIV-infected plasma donors. I was instead escorted by local officials everywhere I visited and shown many village primary schools. I discovered two years later that I had come very close to several villages devastated by the epidemic during that earlier visit.

3. It is important to note here the differing scales of political control between central and local governments. Also at issue are the conflicts and contradictions between official media and commercially driven news reporting. China Central TV is a state propaganda organ located in Beijing, but its programs nonetheless have to compete for audience and advertising revenue.

4. The distinction is even harder to maintain in Chinese because infection with the virus is most often referred to as the "AIDS disease" (*aizibing*). The fact that death is not a clearly definable natural event but loaded with cultural extrapolations is elegantly demonstrated by Margaret Lock (2002).

5. The government's treatment statistics were also rendered unreliable because many villagers who had received ARV drugs never actually took them. They were stockpiling the drugs for fear that the government's plot was to tease them with the free drugs until they became dependent and then charge them for the treatment.

6. From this perspective, the infection of rural plasma donors appears to have been merely an unfortunate accident, and the government only had to impose rigorous regulations on commercial plasma collection to control the epidemic, which the government did in 1998 in an atmosphere of secrecy.

7. In 2004, I wrote up this research for a leading Chinese medical journal on sexually transmitted diseases and HIV/AIDS, which accepted my article but never published it. My research, the editors told me, would quickly become obsolete because the Chinese government would soon be able to provide regular CD4 testing to HIV-positive plasma donors in Henan with the funding from a number of international agencies. In 2005, treatment-related regular CD4 testing was still unavailable, even in counties already supplied with the testing equipment and materials.

8. Lerner (1997) provides a historical account of the emergence of the notion of medical compliance. For a discussion of compliance in medical anthropology, see Trostle 1988.

9. The treatment program that the government rolled out primarily for HIV-infected rural plasma donors consisted of a bare minimum of first-line regimens, severely inadequate in terms of treating the adverse reactions of drug therapies. Even with the influx of international financial assistance and technical involvement that has been arranged through Project Hope, the Clinton Foundation, and Médecins sans Frontières, the treatment protocol produced by the Chinese Center for Disease Control in 2004 (see Zhang 2004) still excluded second-line regimens from coverage by the government's free treatment program. The narrow focus on ARV medications to the exclusion of other support strategies for treatment and care serves only to further handicap the efficacy of these drug therapies.

10. One researcher who works for a think tank under the National Committee on Development and Reform thus confronted me with his peculiar nationalistic logic: we should not yield to the international "hype" on China's HIV/AIDS crisis by diverting the nation's limited health resources away from other public health needs—"If foreigners are so concerned, let them open their moneybags, and we would be happy to work for them!"

11. Unless otherwise indicated, I use pseudonyms for the villagers I write about in this article.

12. The municipal government of Beijing imposed a 2 percent annual quota for voluntary, unremunerated blood donation among the city's residents for hospital use. Each year, for example, a company of 200 employees would have to send four donors to the city's blood bank for donation. To fulfill this quota in a way that is less costly than paying their



own employees or give them long paid vacations for donation, many companies resorted to paying donors from among the rural migrant workers in the city. For a discussion on China's blood banking system, see Shan et al. 2002.

13. This government relief fund was a one-time payment given in two installments, one at the beginning of house construction and the other upon its completion, to make sure that the money was not used for other purposes.

14. The government-supplied ARV regimen costs about the same and differs from the popular import in only one of the three ARV drugs. A smuggling network organized by HIV-positive people in South China began to supply ARV drugs well before domestic generics became available. During my field research, this network also collected government-supplied ARV drugs in Henan from villagers who had stockpiled them to give to patients not covered by the government's program in other parts of China because they are considered "less deserving."

15. The term *plasma economy* was used in 2001 in an early news report published in *Sanlian Shenghuo Shoukan* (*Sanlian Life Weekly*). The text of this report is available online (China Central Television 2001).

16. Previously, the Ministry of Health consolidated these research and production facilities in 1989 to form China National Biological Products Corporation.

17. Dr. Liu Junxiang's first proposal to adopt plasmapheresis was rejected by the Ministry of Health in 1974. The ministry only gave him verbal permission in 1978 to start a pilot program in the following year. The program met with strong resistance from his colleagues at Beijing Institute of Biological Products, and Dr. Liu Junxiang had difficulty putting together a team to work on the project. Some of his colleagues found the idea repugnant and accused him of "treating human beings like animals." Many refused to participate because they thought he had started a reckless venture and "would sooner or later end up in court" (*Zhongguo Kexu Jishu Zhuanjia Zhuanlue Bianjibu* 2000).

18. The 1984 Ministry of Health document reveals that China was importing \$12 million worth of blood products, including albumin, immune globulin, coagulating factors, and fibrinogen, from Germany, Austria, France, the United States, and Spain. In the same year, the six research institutes of biological products under the ministry were capable of producing only 1.2 tons of albumin, which was far short of the domestic demand (see Ministry of Health 1984).

19. See Ministry of Health 1986 for the document announcing this ban.

20. The term *source plasma* first came into use in the United States in the 1970s to designate commercially collected human plasma specifically for the purpose of fractionation. It is, therefore, distinct from "recovered plasma" from noncommercially donated whole blood, which can also be fractionated. The rendering in Chinese of the modifier "source" as *yuanyiao* (raw material) implies that the fractionation industry has relied exclusively on commercial plasmapheresis to obtain its raw material.

21. Based on the average 2 percent yield of albumin from plasma by weight, the amount of plasma required is 600 tons. It has been estimated that by 1995, licensed collection centers in Henan numbered around two hundred. Even if this number is multiplied by the lowest amount that the smallest collection center should be able to collect, as specified by the official handbook (Liu and Ji 1989), 6.4 tons each, as much as 1,280 tons of plasma would have been collected in this one province. Many published personal accounts suggest that the amounts collected by these centers were often much larger and that they operated far more hours per week than specified by the handbook.

22. The new regulations issued by the Ministry of Health to prevent the spread of HIV/AIDS and other blood-borne infectious diseases among commercial plasma donors stipulate that collection can only be done using automated plasmapheresis with single-use

disposable bags, each collection station is allowed to sell its plasma to a single fractionation plant, and donors can only sell their plasma to the collection stations in their own area of residence.

23. Apparently, the rationale for this pattern of concentration of plasma collection is that the rural residents in the mountainous parts of these provinces are safer donors because they tend to be more isolated and less likely to travel. For the same reason, they are also more impoverished and thus more likely to see plasma donation as an attractive source of income.

24. The city of Shanghai, which once relied heavily on source plasma from Henan, now purchases almost as much plasma as Henan does from other provinces. These two plasma importers represent as much as 60 percent of the total out-of-province plasma allocation by the ministry.

25. For three years in a row, 1999–2001, albumin was in fact the second-highest cash-value drug sold by hospitals in China according to a market analysis by the Beijing Consultech group (see 2002). For a case study of albumin overprescription at a major hospital in Beijing, see Wang et al. 2005.

26. To quote from the prospectus by one company prepared in 1998 for its entry into the stock market:

The demand for and production of human serum albumin are the greatest among blood products both in China and abroad. Currently the consumption of albumin in our country is estimated to be 50 tons a year, with very little consumed in rural areas. Further economic growth will increase the consumption of blood products. Our country's population of 1.2 billion people needs to consume at least 120 tons of albumin according to the minimum of 0.1 gram of albumin per capita per annum recommended by the WHO. In addition, because the overall price for domestic blood products is lower than it is on the international market, exporting blood products will bring good economic benefits. [see Beijing Tiantan Biological Products Corporation Ltd. 1998]

27. The three most recent editions of the World Health Organization's model list of essential medicines do not include albumin (WHO 2002, 2003, 2005). Laing et al. (2003) provides a historical review of the WHO essential medicine list. According to Waning and Laing (n.d.), albumin was added to the list in 1978 and deleted from the list in 1999.

28. See Hualan Biological Products Corporation Ltd. 2005:25–26. Among the tax incentives that the Chinese government has offered to the biotechnology industry since 1994 are two options to lower the industry's value-added tax payment. A company can opt to pay a lower 6 percent value-added tax (VAT) or pay at the normal 17 percent rate but take a deduction with 13 percent of the amount paid to purchase "agricultural products by agricultural producers" for raw materials. Because the purchase of source plasma constitutes the bulk of production cost for the fractionation industry, the second option is more beneficial if the definition "agricultural products" is allowed to include human blood. This company, however, has decided against switching to the lower 6 percent VAT payment to avoid losing the pharmaceutical distributors it depends on to market its products. Reluctant to bear the extra 11 percent VAT burden transferred downstream to them, these distributors would either stop selling the company's products or ask the company for cash compensation to cover their extra tax payment, which would amount to the same effect as the company itself paying VAT at 17 percent.

29. Lin (1992) calculates that the increased use of chemical fertilizers contributed approximately one-third of the output growth during this period. This increase, Lin suggests, was in part related to the improved availability of chemical fertilizers in the same period.

30. One mu is approximately one-sixth of an acre; one jin is 0.5 kilograms.

31. The seed varieties on the market that year ranged from 0.8 to 1.5 yuan per jin. Lingshu would have needed only 320 instead 400 jin of wheat for the 8 mu of land. The best and most expensive seed varieties, according to Lingshu, are riskier because their high-yield potential depends on perfect weather conditions.

32. I have in mind here Paul Farmer's (1992) apt phrase "the geography of blame" from the title of his study on HIV/AIDS in Haiti.

33. Lingshu's HIV-infected son Jianguo was once asked by a journalist from Guangzhou in a telephone interview how many families in his village had built new houses with the money from plasma sales. After the interview, Jianguo told me angrily how insulted he felt by these assumptions on the part of journalists.

34. "Blood transfusion" proper has now come to be referred to as "blood supplementation" (*buxue*) as a result. The term *supplementation* here is closely associated to a therapeutic approach (*zhifa*) in traditional Chinese medicine in which the body is seen as an economy of dynamic components that need to be kept in balance. The popularity of plasma-derived albumin and immune globulin in China, ironically, can be largely explained by the popular understanding of their potency in "supplementation" in this traditional sense.

35. In one village I was told that the collectors actually added beer to the bags of plasma before they were loaded onto refrigeration trucks.

36. "Hope" is, in fact, the name of one of the drugs used in an experimental study of HIV-infected villagers.

37. One of the "blood heads" I came to know first started as a donor at the collection station operated by the hospital of traditional Chinese medicine in his county and began working for the station to recruit more donors from his own village. He took me to his room where his wife lay in bed giggling, because she had developed AIDS dementia. Tears streamed down his face. Even though he himself was also infected, he was by then completely ostracized in the village.

38. While enrolled in the clinical trial, he told me that he realized that his CD4 had dropped to a dangerously low level. He decided to start taking S30, a combination of generic antiretroviral drugs manufactured in Thailand, bought with money from the lawsuit. The doctor in charge of the trial eventually discovered the reason behind the remarkable rebound of Yuhua's CD4 count and promptly eliminated him from the trial.

39. There is a large body of research in social epidemiology, sociology, and anthropology that sees socioeconomic inequality, rather than poverty per se, as an important factor contributing to the patterns of disease distribution in general and the epidemiology of HIV/AIDS in particular. For further discussion, see Farmer 1996, 2001; Fassin 2003; Gilbert and Walker 2002; House 2002; Krieger 2005; Link and Phelan 1995; Mosley 2004; Nguyen and Peshard 2003; Rhodes et al. 2005; Schoepf 2001; and Worthman and Kohrt 2005.

40. Such ambiguity is discussed by R. G. Collingwood specifically in connection to Gresham's law, according to which bad money drives out good money in the market. "Good money possesses value as commodity or use value, thus, if you select a certain thing for use as money because of its value as a commodity, you are tempting people to use it not as money but as a commodity" (Collingwood 1926:181). For further discussion on how commodities emerge as money, see Burdett and Trejos 2001.

41. Regarding the use value of plasma-derived products, the comments made by Juhani Leikola of the Finnish Red Cross Blood Transfusion Service at the Plasma Products Biotechnology Meeting in 2001 are worth quoting here to illustrate my point:

It is ... surprising that the indications for use of albumin and intramuscular gamma-globulin are ill-defined, if they exist all. Intravenous gammaglobulin, the emerging driving force for many fractionation laboratories, has some precise clinical indication,

but I have a feeling that the bulk of it is used because of vague feelings and anecdotal evidence. In that sense, it is not very different from albumin. All other plasma components are more or less niche-products. . . . [Their] volumes [as] potentially used remain less exciting. [2001]

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**ABSTRACT** *This ethnographically grounded “epidemiology” implicates China’s liberalized economy in the HIV epidemic among commercial plasma donors in rural central China. It uncovers the pathological confluence of spheres of economic circulations that have created the conditions for value to be extracted not through labor but from human plasma harvested from agricultural producers. This critique has emerged out of, and in turn informed, efforts to forestall the secondary epidemic of AIDS among donors already infected by HIV. The specific history of the production and consumption of blood products in China shows how biotechnology broadly defined can be powerfully refracted by local configurations of economy, technology, and social relations. The ideologically sustained second-order “reality” of benevolent economic imperatives needs to be brought into the critical focus of cultural anthropology. [China, HIV/AIDS, commercial plasma collection, epidemiology, economy]*