Chennai's Biotrash Chronicles: Chasing the Neo-Liberal Syringe[1]

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ABSTRACT

This tale of biotrash in Chennai is about how the regulation and governance of health under neoliberalism consolidates and intensifies markets—including the market for biomedical waste. In particular, this starting point for this paper is a discussion of how international medical tourism in a globalized, or "new," Chennai has created conditions for the illegal if licit biomedical waste recovery industry to thrive. In this paper, I chart out the waste economies of medical garbage produced through the conjunction of health care and globalization in India. I end this overview by outlining the multiple circuits of value in which one particular object of medical garbage travels: the disposable syringe.

Keywords: - Garbage, governance, regulation, India, Chennai, disposable syringe, value, risk, biotrash

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This tale of biotrash in Chennai is about how the regulation and governance of health under neoliberalism consolidates and intensifies markets—including the market for biomedical waste. In particular, this starting point for this paper is a discussion of how international medical tourism in a globalized, or "new," Chennai has created conditions for the illegal if licit biomedical waste recovery industry to thrive. This particular discussion of the conjunction of medical tourism, global biomedical regulation and the local garbage trade in neoliberal India is part of a bigger project—biotrash. Biotrash-the-project investigates the contemporary cultural history of medical garbage in Chennai (formerly Madras), India. By "medical garbage," I refer to material by-products of clinical encounters. This includes but is not limited to things like: used syringes, plastic tubing, blood bags, pharmaceuticals and pharmaceutical containers, as well as human tissue and fluids.[3] In biotrash-the-project, I place discarded syringes alongside umbilical cord blood banks to ask questions about the tenuous relationship between waste and resource in New Chennai in a postgenomic age. In this paper, I chart out the waste economies of medical garbage produced through the conjunction of health care and globalization in India. I end this overview by outlining the multiple circuits of value in which one particular object of medical garbage travels: the disposable syringe.

The working hypothesis of biotrash-the-project is: through tracking the material and discursive traffic in medical garbage, biotrash provides a privileged analytic vantage point from which to explore the historic, casted, classed and gendered fractures in and contingencies through which the "public" is constituted in "public health." One corollary hypothesis to this is that the constitution of the "public" in "public health" can be understood as a function of the economic, political and social transformations that have shaped Chennai over the course of the late twentieth and into the twenty-first centuries. In other words, mapping the waste economies of biotrash in Chennai does not produce simply a set of paths by which one can chart the project of waste: either converted into resource or disposed of. Rather, this mapping reveals distinct "value chains", or people, who labor under distinct conditions across multiple striations of global

[3] As part of this investigation into recuperated biomedical waste, this project also has a major component on umbilical cord blood banking in contemporary Chennai. I do not discuss cord blood in this paper. For a number of reasons (that would distract at this stage in the game), in the larger project I have chosen not to address either organ sales or the traffic in human eggs or (post-IVF) embryos. But I do hope that questions about various boundary delimiting and crossings might emerge in our conversations in Venice.

capital.[4] Their labor revolves around a diverse set of objects that acquire value through specific transactions and in specific markets. This mapping also reveals various strategies of governance (of both state actors as well as others) to address the regulation of biotrash as a risk economy as well as of its regulation as commerce. Thus I seek to understand the governmentality of medical garbage in neoliberal Chennai not through an analysis of "health" *per se,* but instead through an analysis of emergent forms of risk-capital. At its most provocative, biotrash suggests that in its oversight of public health, the "new" role of the state in public health is to maintain conditions that position its citizens as subcontractors and to facilitate these citizen-subcontractors in the buying and selling of their own health.

As an historian of medicine—particularly an historian of public health—the study of medical garbage in contemporary India causes me regularly to ask questions about the particularity of the "new" produced in the conjunction of neoliberalism and health. By mapping the waste economies of medical garbage, I attempt to highlight the delicate, contingent and shifting relations between health's governors and its governed, between its buyers and its sellers, between the discarded and the grasped.

I. Looking for medical garbage in Chennai: An interim report

A bit of background. In both March 2007 and March 2008 I spent a fortnight traveling around Chennai. The 2007 trip was very much a fishing expedition. This trip came at the end of about nine months in which research assistants in England helped me piece together a picture of the juridical status of medical garbage in India.[5] So when I landed up in Chennai in 2007, my big research questions were—Did real live medical garbage even exist? Did anyone care about it besides me? My subsequent 2008 trip was a much more focused exercise in which I consciously set out to map specific trails of trash.[6] But let me make a few things clear. I am far from a kamikaze researcher who tirelessly chases down evidence whatever the cost. Additionally, I am not stealthy. I cannot move unnoticed through this city. I do not "pass." As a white woman

[4] Aihwa Ong, *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty* (Durham, NC: Duke, 2007), p. 12.
[5] Nandini Bhattacharya, Caroline Proctor and Sarah Hodges, "Medical Garbage and the Limits of Global Governance in Contemporary Tamil Nadu." Under review at *Critical Asian Studies*.
[6] Except for the interviews with staff at Hospital A, all the interviews in cited in the rest of the paper were conducted by the author and Pritham Chakravarty.

speaking Tamil, I am *more* rather than less conspicuous. Yet people in the business of biomedical waste were willing to talk. For the most part, people whom I met were not cagey. Above all: what I came across was not hidden.

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Structurally, the biomedical waste recovery industry bears a strong resemblance to the general household waste recovery industry that anyone who has ever been part of an Indian household will recognize.[7] In Chennai's general waste recovery industry, there are two types of front-line workers. One set of itinerant workers root through open garbage on a daily basis and collect items with resale value. Some carry big bags and a long, sword-like metal poker. The other set of itinerant workers visit homes and sometimes businesses to buy items. Usually this second set of workers travel by bicycle and carry a set of scales and a large jute bag. Households hang onto specific items in anticipation of these visits from buyers. These buyers have set amounts that they will pay for things like empty plastic milk packets, old newspapers, and glass bottles. Both sets of itinerant workers in turn sell their collections on to local brokers who run small shops (often called "paper marts"). Local general paper mart proprietors sell their stock to wholesalers who operate warehouses, generally outside the city limits. At this point, the general waste recovery industry specializes based on different forms of material—paper, glass or plastic. Paper wholesalers employ local warehouse-based women workers to sort paper and employ men (who have often moved to the warehouse from the owner's region elsewhere in Tamil Nadu) to load it and deliver it to paper mills. The mills buy it and pulp it. Similarly, glass wholesalers employ local, warehouse-based women workers to sort and wash the bottles and bring in men from father afield to load washed, sorted bottles onto trucks that deliver bottles back to bottling plants. For the most part, glass wholesalers deal in beer and liquor bottles and sell their stock back to the distilleries that produced them.

[7] For an analysis of the general waste recovery industry in Delhi, see Kaveri Gill, "Deprived Castes and Privileged Politics: An Urban Informal Market in Contemporary India." *Economic and Political Weekly* (January 14, 2006): 133-141; Kaveri Gill, "Interlinked Contracts and Social Power: Patronage and Exploitation in India's Waste Recovery Market." *Journal of Development Studies* 43, 8 (2007): 1448-1474; Kaveri Gill, "The Nature of Exchange in Delhi's Waste Recovery Market: Patron-Client Relations in the Urban Informal Economy." Centre of South Asian Studies Occasional Paper, no. 3 (Cambridge, 2004). For the state of play in Chennai, see V. Sudhir, Planning for Sustainable Solid Waste Management in Urban India: A Critical Systems Approach.. PhD Dissertation, Department of Humanities and Social Sciences, Indian Institute of technology, Madras, 1996, pp. 75-78.

I am not sure how long this organization of waste recovery has held sway. Most people whom I asked pointed to the 1960s as a period in which the organization of waste recovery industries in India in general was consolidated. For example, one account dates the organized informal plastics recycling industry in Delhi from the 1960s.[8] However, it is possible that this is a generational perception and that older people might periodize their business differently. Similarly, it is possible that successive regimes of value have shaped the organization of waste recovery work. For example, one study of waste recovery in Delhi points out that itinerant waste collectors (or "ragpickers") are drawn from caste communities who also/earlier worked as sweepers (workers in human and animal faeces or who worked with corpses or carcasses).[9]

Most of the biomedical waste recovery industry operates as a sub-set of the larger waste plastics business. Compared to paper or glass, the plastics business is less straightforward. In part this is because the plastics waste recovery industry is more specialized. Biomedical waste has a similar pyramid-shaped structure as that outlined above for paper and glass. Ragpickers have historically been the most visible workers in medical garbage economies. Their work consists of sorting through refuse dumped outside hospitals, clinics and labs in order collect specific discarded items.[10] Menial workers in the clinical setting are less visible to the general public but certainly significant in biomedical waste recovery. Hospital cleaners, sweepers, peons and ayahs are reported to work as small-time collectors in the biomedical waste recovery business. They collect waste while at work and sell it to brokers outside the clinical setting. This also tallies with my 2008 observations. However, in Chennai over the past five years one mode of collecting has emerged that is far more organized, consolidated and efficient than anything comparable in the general waste business, discussed in detail below. This mode is produced through the conjuncture of corporate hospitals' compliance with new regulations to segregate and safely dispose of their biomedical waste.

There are hundreds of hospitals and clinics in Chennai. These hospitals range from large (several thousand beds) government hospitals for teaching and research, to large specialist

[8] Kaveri Gill, "Deprived Castes and Privileged Politics: An Urban Informal Market in Contemporary India." *Economic and Political Weekly* (January 14, 2006), p. 134.
[9] Ibid.
[10] See for example the film "Life Goes On" by Suparna Gangal [SMS Productions, 2005] which documents these workers in the western Indian city of Pune.

institutions (such as for eyes or childbirth or for diabetes or tuberculosis), to smaller inpatient institutions, to a profusion of smaller outpatient poly clinics. The major government hospitals of the city put together have more than 12,000 beds. In addition there are about 3,000 beds available in the major private hospitals in the city, with an estimated 9,000 more beds available at the many smaller private nursing homes and polyclinics.[11] The formal regulations for the disposal of biomedical waste in India are stated in the Biomedical Waste (Management and Handling) (Second Amendment) Rules of 2000 of Ministry of Environment and Forest Notification, Government of India. Since the original set of rules was passed in 1998, rules have been in force that required hospitals to segregate and dispose of their biomedical waste separately from their general waste.[12] Patchy evidence suggests that before 1998 some larger private hospitals arranged their own biomedical waste collection, but that the majority of both private and government institutions disposed of their biomedical waste no differently than they disposed of their general waste.

Hospital A

In March 2007 I made a series of visits to one of the largest and most prestigious private multi-specialty hospitals in Chennai. This hospital has several branches in Chennai as well as in major cities in India. In these visits to Hospital A, I sought to get a sense of the quotidian practices for dealing with biomedical waste as a large-scale issue in hospital management. Second, I wanted to see to what degree biomedical waste management practices are informed by formal waste disposal regulations. It seemed a good bet that larger private institutions would likely be relatively more compliant with regulatory structures—or at least they would have the budget to allow for compliance. Third, I was interested to garner what, if any, concerns relevant staff members voiced about their biomedical waste disposal practices.

I turned up for my appointment with Hospital A's Director of the Housekeeping Department, housed in the basement of this corporate hospital. I was invited by other office staff to sit and while the head of the department to emerge from a meeting. I observed a very busy suite of

[11]Development Plan for Chennai Metropolitan Area, Jawaharlal Nehru National Urban Renewal Mission (April 2006), pp. 79-80.

[12] The Rules define biomedical waste as "any waste which is generated during diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals…" (pp. 1-2)

rooms in which one woman spent most of the time shouting—in a stern if polite way—down the telephone at linens laundry contractors asking them how they expected to be paid if they never sent an invoice. Another room was full of men counting sheets and towels. Many staff members bustled in and out.

The head of housekeeping and I spent nearly an hour talking in her office. After this time in her office, she took me on a brief tour of the hospital to see the waste collection infrastructure. Although the hospital is visited on a very regular basis by foreigners—either as patients, practitioners or those seeking international collaborations and tie-ups—the housekeeping department is rarely a port of call on these stops. In this "Cinderella" department within an internationally famous hospital, I unwittingly found myself granted enthusiastic and unexpected access to a host of files, records and general paperwork. I was in fact unable to carry all the documentation passed my way, and so the department head had one of her junior staffers take the materials and photocopy them for me. I was also given a number of CD-ROMs to take away and make copies of for myself. As the department head explained, housekeeping is crucial for the entire functioning of the hospital. The few foreigners who do visit housekeeping do so in the form of international auditors. The hospital, as a destination for medical outsourcing as well as "medical tourism", is regularly audited by international boards of accreditation, connected mainly to insurance bodies. These accreditation bodies look particularly carefully at infection control practices.

A week later, I made another visit to this hospital to return these materials and take photographs of biomedical waste collection in action. I was given a photo-op tour by the head of the sub-department for garbage collection. He showed me the ways that waste is segregated into the WHO-recommended four types: general (household) waste, infectious waste, sharps and highly infectious waste. Within the hospital, there are waste segregation and collection points at all nursing stations as well as in the corridors. I was able to speak with the staff who conducted the hourly internal collection within the hospital and see the temporary on-site storage facility located behind the hospital, within the compound.

One of the most relevant developments in biomedical waste management that I learned about through my visits to this hospital regards the recent move to regularize and to privatize biomedical waste collection in Chennai city. In response to a tender announced by the Tamil Nadu Pollution Control Board, since 2002, a private company has been contracted to collect the biomedical waste of private hospitals within the boundaries of Chennai corporation.[13] For Hospital A, this means that biomedical waste collection lorries come twice daily—once in the morning and again in the evening to collect the four types of waste that the hospital generates and segregates. Hospital A's housekeeping staff explained that this company delivers the bags and containers of biomedical waste to their facility to the southwest of the city where some of it is incinerated and sharps are autoclaved, shredded and disposed in deep-pit burial. The charges that this company levies for this service—Rs 4 per bed per day—are set by the government.

As part of their record maintenance in anticipation of constant accreditation and auditing processes, the housekeeping department at Hospital A undertake spot audits of this private biomedical waste disposal company. I was given examples of the documentation produced by these audits. Unannounced, Hospital A sends out a team of colleagues in an unmarked vehicle to follow the private waste disposal company's rounds on a monthly basis. The Hospital A workers document where and when the lorries make their collection stops, produce a report which is then countersigned by a senior member of the hospital administration. The head of housekeeping explained to me that part of the reason that this cloak-and-dagger work is part of the overall work of the housekeeping department is because there is a thriving, longstanding and well-documented trade in India in discarded biomedical waste—used syringes, used blood bags, used IV tubing, emptied bottles and phials of medicines, to name but some of the most traded-in items. As part of their biomedical waste disposal practices, Hospital A attempts to guard against its biomedical waste entering into these economies.

In March 2008, I was able to meet the manager of the biomedical waste disposal company that services Hospital A. Along with my partner in research, I went to the registered offices outside just south of the border of the Chennai municipal corporation. The manager explained his work

[13] Although this paper deals only with Chennai, this is the current state of play among all major cities and towns in Tamil Nadu.

and that of the company and other similar companies across the region. When we asked why he thought these companies now existed, he explained that the enforcement of new laws led to the need for companies such as his. Within this explanation he made clear that his understanding was that separate biomedical waste collection was for the express purpose of preventing the sale of biomedical waste.

The manager's office serves as an in-between point for waste collection in the city and the disposal facility farther south.[14] The office also stores supplies that it provides to clients—colored biomedical waste bags, sharps boxes, and stickers and posters in Tamil and English that are meant to accompany the waste bins and that explain what items go in which bin. (Only the largest and richest of private hospitals have their own bags printed, clearly marked with the hospital name and biomedical waste types. All other clients are supplied by this company with generic bags.) After this meeting, and after a few persistent if polite requests, we were able to journey on southwards away from Chennai to visit the company's biomedical waste disposal facility. I was particularly keen to see this in light of what we had stumbled upon two days earlier in a vastly different part of the city.

Prior to visiting this biomedical waste disposal company's office, we had visited the largest municipal dump in Chennai, Kodungaiyur dump, in the northern part of the city. Kodungaiyur dump is a 350-acre site that receives daily loads from Chennai corporation rubbish trucks (it is also where the corporation's newly-installed biomedical waste van dumps waste from government hospitals in the city).[15] We drove there looking for the government biomedical waste disposal facility. We found something else. In front of an unassuming, if *pukka*, shop along a long line of similar structures, we spied a small mound of multicolored plastic bags on the ground. We walked up to the shop and saw that these were all biomedical waste bags, clearly printed with the name and logo of Hospital A. One man was working with opened waste bags, sorting the contents into different buckets. We walked over to him, over the bloody linens and broken syringes liberally strewn on the cement floor of the godown, and asked him what he was

[14] The parent company also has other businesses for biomedical waste collection and disposal across the region.
[15] Violations of Environmental, Labour and Human Rights Due to Garbage Dumping and Burning at Kodungaiyur, Chennai: A Fact-Finding Report. Community Environmental Monitoring, March 2007, pp. 1-3.

doing. He politely pointed out that one bucket was for surgical gloves, another was for syringe barrels, another for syringe caps, and another for miscellaneous plastics.

"What happens then?" We asked.

"Then they come and collect it." He explained.

"And after that?"

"After that they wash it nicely. For the syringes they fix new needles."

"What actually goes in the dump?!" We asked, pointing to the vast sprawling, smoldering site opposite.

"Oh, there? Hands, arms, that sort of thing." Looking behind this man into the rest of the godown, Hospital A biomedical waste bags were visible, piled as high as the structure was tall. On the wall near the front of the godown was a wooden sign from an era before electric and plastic: painted in official blue and white "Main Hospital, Hospital A," possibly picked out of the waste that had arrived at some point. Much like neighborhood-based paper mart shops display unusual but possibly valuable items—broken telephones or kitchen gadgets—the sign was waiting as if for the right buyer to arrive. It was about lunchtime then, and on the forecourt of the next shop a few women and a man in a cleaning company uniform were sitting eating their lunch. They explained that they also worked there and that the owner would come later. I asked the man in the uniform if I could take his picture and he said no.[16]

In light of this turn of events, when we landed up at the company whom Hospital A explained as their biomedical waste collector and disposer, we were very curious to try and understand the divergences between the account of Hospital A and where these bags ended up.

When we asked to visit the disposal facility, the manager explained that the site supervisor was not in and this was not a good time for us to visit, because there would be no one there to answer questions that we might have. "That is no problem!" we cheerfully protested and explained that we just wanted to take a quick look. In the end, the manager arranged for us to be met in the town near the disposal facility by a young man who had been working at the facility for four months. This junior employee hopped in our car and we drove down a road that got smaller and

[16] The Community Environmental Monitoring fact-finding team made reported very similar shops, albeit sorting waste from another of the city's corporate hospitals (identified by their printed biomedical waste bags), pp. 12-13.

smaller and more and more remote, until we came to a huge grassy compound that was largely empty, save for a structure that resembled a fire station emptied of its engines and with a fifty-foot high smoke stack, topped by a *trishul*. This building housed an enormous incinerator and an enormous autoclave. It is an isolated spot, so there were no people strolling though. However, an army training center lies nearly and our visit was punctuated with the sounds of large artillery explosions and semi-automatic rifle fire.

We walked around with our guide and saw the deep pits for sharps as well as the lined pits for incinerated ash. We also saw about a dozen women sitting round the back of the incinerator-autoclave building. When we arrived, these women were finishing up their lunch. By the time we finished our informal tour of the compound and returned to this main structure, these women were getting back to work. They were sitting next to opened boxes and half-filled buckets. We asked them what their work was there. "We are the sorters," one replied. Some responded with more detail and pointed to the medicine bottles that they were opening up, and showed how they were to empty the contents into a common barrel, and then put the glass bottles into one bucket and their metal rims and lids into another bucket. Our young host explained that many different merchants regularly come to buy this and all sorts of other sorted "scrap." In other words, at this site at least, the biomedical waste recovery is an integrally regularized part of the very companies that are tasked with its disposal. Instead, these disposal arrangements, particularly by the presorting of the waste, facilitate a highly efficient—if illegal— recirculation of used medical objects.

Due to the sheer volume of the collection of biomedical waste in Chennai, the private collection is now split between two companies. One company looks after the central and southern parts of the city (everything up to Poonamalle High Road) and another looks after the north of the city, where there is a substantial concentration of hospitals and clinics.[17] The day after meeting the manager and visiting the disposal site of the south and central collection company, we were able to meet the manager of the company that collects biomedical waste for north Chennai. This man helpfully explained the structure of the business he managed, pointing out the various waste

[17] Both of these companies also collect waste from scientific laboratories—big producers of rat and pig carcasses—as well as waste from pathology laboratories. I did not pursue this aspect of their work in interviews.

disposal facilities across the region and discussing which companies held the biomedical waste collection and disposal contracts for the other major cities across the state. He complained at length about the financial difficulties faced by the industry. First, he explained, there are routine practical problems with maintaining infrastructure. Both collection vehicles as well as incinerators and autoclaves regularly break down and need servicing. This brings the entire operation to a halt and causes the company to make a financial loss during that time.

But far more than equipment malfunctions, this manager explained, the combination of doctors' attitudes and the market for biomedical waste itself has created a massive obstacle to the smooth running of his company. He repeated a phrase that was routinely deployed to explain the reticence of hospital managers to cooperate with the system: *Kuppaikku etirkkak kaas kotukka ventum?* In other words, doctors running hospitals ask: "Why should *we* pay *you* for our garbage?" This waste collection and disposal manager went on to complain that his largest client is eighteen months in arrears in payments. He claimed that this was not simply the product of a worldview at odds with the new regulatory regime. To emphasize his exasperation, he claimed that this errant hospital has a room directly below the top management offices in which the hospital themselves staff sort medical plastics as part of their own resale business maintained by the hospital. He also recounted an instance in which a large government hospital had put an open tender in the newspaper for their biomedical waste—not for *collection*, but for *buyers*. "What can we do when these fellows behave in this way?" he asked, throwing up his hands. Further, he pointed out that his drivers also faced challenges beyond their vehicles breaking down. Drivers are in low-paid work and are regularly approached by people who ask to buy the contents of their van. The manager explained: "I can pay my drivers only Rs. 4,000/month. Who can blame them if they are tempted to sell?" Finally, he pointed out that the state Pollution Control Board lacked political will to enforce the laws, and exclaimed: "*We* are spoiling our own future." His anger at the financial loss suffered by his company was mixed with anger about the moral wickedness and public danger of the trade that undermines his own.

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In contrast to large private hospitals, large public government hospitals in Chennai have only very recently (since about October 2007) begun to dispose of their biomedical waste separately

from their general waste. The government hospitals' waste recovery business looks to be far more piecemeal and less organized—if potentially much larger (at least in terms of total patients treated and thereby waste produced). Yet despite the possibilities presented by the vast scale in the government hospital sector, the biomedical waste recovery industry has become consolidated not as part and parcel of a juridical regulatory apparatus to prevent this trade, but has arisen specifically as a response to a distinct regime of regulatory compliance fashioned by multinational insurers who traffic in "medical tourism." Global insurers thus regulate medical commerce as well as attempt to maintain levels of acceptable risk: both financial and epidemiological. If these new regimes of regulatio do anything at all, they create conditions for enterprising illicit, informal economies of waste.

My initial findings suggest that global medical tourism and its knock on effect of Chennai hospitals' compliance with multinational insurers' audit practices has, if anything, been a huge shot in the arm to the biomedical waste recovery industry there. Presorted medical waste regularly falls off the back of the private biomedical waste disposal truck between its collection at corporate hospitals and before it makes its way to the private disposal sites outside of the city. The reusable waste that does make it to these sites is then sold out of the back of the godown.

II. "New Chennai"

Chennai has changed substantially since the late 1990s, both in terms of its physical perimeters as well as in terms of its image. A coastal city in southeastern India, Chennai is the state capital of Tamil Nadu and is the fourth-largest city in India (after Mumbai, Delhi and Kolkata). Chennai reported a population of over 7 million in the most recent census of 2001. The dominant narrative of change goes something like this: after years of remaining a "sleepy," if major, Indian city, in Chennai a new set of affluent Indian consumers sprang into being in light of the information technology boom that has swept the city over the past ten years. As companies have been priced out of the initial south Indian info-tech boom-towns of Bangalore and Hyderabad, Chennai, with its pool of more moderately-priced land and labor, has happily received the overflow—particularly to the southward expansion of the city. There are persuasive reasons to doubt the explanatory validity of this story of cascading capital in light of work done by critical economists about the role that manufacture (particularly automotive and other

consumer goods) has played in the boom-town effect that city is in thrall of, but I shall put those to one side for the moment. For the moment, what matters is that this is the conventional wisdom. "Information technology"—glossed broadly as science—has made Chennai rich and a player in the global economy. It is in this context that the contemporary taxonomies of biotrash take life.

As one turns out of the airport in Chennai, not turning north towards the city but south away from it, fresh arrivals to Chennai are greeted by a string of construction sites. The temporary compound walls that shield the building work from common view are papered over with publicity for the upcoming developments. Some picture blue and glass corporate work pod buildings that are on their way. Others picture designs of residential housing—nearly always boasting that they will be "gated communities." As I traveled up and down this road in March 2008, the publicity I found most riveting was a series of close-up photographs advertising what sorts of Indians will feel at "home" in this imminent utopian community. The focal point of the series of images was always a young man or woman posed in front of a laptop computer, sometimes with idealized family members, sometimes with colleagues or friends, often with at least one person in the photograph sporting a bluetooth headset. The tag-line for the housing development reads boldly: "Where efficiency becomes a way of life."

Mulling over my experiences looking for biotrash in new Chennai, I could not help but wonder what exactly comes of embracing efficiency as a "way of life"? What about the efficiencies of biotrash under the weight of global capital for medical tourism? Over the past decade, there has been an increasing emphasis by state institutions, planning bodies and business on "transforming Chennai into a world class city so that it becomes a preferred destination for foreign direct investment and the global business traveler."[18] Chennai has effectively marketed itself across India and more recently globally, as the destination for top-rate medical care at third world prices.[19] But the success of this business plan for urban governance has had some unanticipated outcomes—particularly in terms of how compliance with these regimes of efficiency in health care delivery makes efficiency in biomedical waste recovery markets. In this sense, biotrash

[18] Pandian et al *Museum Exhibition, Backyard: Chennai*, p. 9.
[19] Development Plan for Chennai Metropolitan Area, Jawaharlal Nehru National Urban Renewal Mission (April 2006), p. 79.

lives in Chennai's "backyard." Of the backyard, Pandian et al have written: "Humans and non-humans, the living and memories of the dead, jostle in the backyard. Playing hide and seek with the surveillance of the state, backyards are places of improvisation, resistance and energy."[20] Yet unlike Pandian et al's oppositional backyard that "frustrates and subverts the globalizing desire of the elite," this backyard of biotrash is a direct outcome of these globalizing desires.

Regulation and governance, or, Non-compliance, risk, and the informal economy

For the most part, the rationale behind the regulation of the collection and disposal of biomedical waste globally since the 1980s has been to guard against the potentially infective risk that clinical medical garbage presented to clinicians, to the medicalized, and to the environment. Waste economies of medical garbage in India raise productive questions regarding the assumptions of contemporary and historical waste-management literature (based largely on the experiences of the US and western Europe). In India, waste management guidelines that aim to control infective risk are most regularly met with a lack of enforcement on the part of state agencies and non-compliance on the part of health care providers and their subsidiary sub-contractors. Unenforced regulations and non-compliance are conditioning features of the governance of health rather than unfortunate side notes.

As Peters and Muraleedharan have argued, "India has a comprehensive legal and regulatory framework and large public health delivery system which are disconnected from the realities of health care delivery and financing for most Indians."[21] Similarly, Lawrence Cohen has pointed to the disconnect between the state's conceit to rule and the very regulatory functions that the system that governs kidney transplants has established. Explaining how the establishment of such a regulatory system made the job of kidney brokers easier and less open to criminal accusation, Cohen turns to the question of the regulatory state under these conditions: "What are reduced to passive (or at most, weakly regulatory) players are the law and other instances and agencies of the state in its current [neoliberal] conjuncture."[22]

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[20] Pandian et al p. 10.
[21] David Peters and V. R. Muraleedharan, Regulating India's Health Services: To What End? What Future?" *Social Science and Medicine* 66, 10 (2008), p. 2133.
[22] Lawrence Cohen, "Operability, Bioavailability and Exception" in Aihwa Ong and Stephen Collier (eds), *Global Assemblages: Technology, Politics and Ethics as Anthropological Problems* (Malden, MA and Oxford: Blackwell, 2006), p. 85.

Thus the current status quo is the non-enforcement of and non-compliance with official regulatory structures that seek to manage potential infective risks presented by medical garbage. This non-compliance is compounded by the fact that waste economies of medical garbage are, officially, illegible to the state. Nevertheless, as much as the potential infective risk of biomedical waste continues to need regulating, it is now the *commerce* in products more traditionally associated with biomedical waste that is in need of regulation. For the licit if illegal waste economies of medical garbage are *part and parcel* of India's booming informal economy. In other words, the regulatory framework that (only very recently) grew up to manage the infective risk of biomedical waste is now out of step with the material products of the market in quotidian life of globalized health in Chennai.

"Risk" plays a central role in mediating both the value of Chennai's medical garbage as well as how engagements with risk drive its labor that extract this value. The waste economies of biotrash function largely as risk economies, in which individual garbage workers' willingness to take on risk, and the corollary desire on the part of medical tourism's hospitals to be see to be containing risk, are the crucial variables through which value is produced. In this vein, I am not interested in pursuing "risk" as a "risk management" of Foucaultian insurance analyses or the "risk" in "risky behavior" of AIDS studies. The latter—the risk of "risky behavior"—rests on an implicit logic of "choice." That is, the idea that one chooses to engage in risky behaviour in the face of disregarding a "safe" alternative. This mobilization of "free choice" is certainly hard to embrace in the face of observations that frontline biotrash workers generally come from among the most socially and economically disadvantaged. The former mode of "risk-talk" maps complex state-centered risk economies to understand and guard against collective risks. In this scenario, (liberal) states, through the provision of public health measures, seek to minimize costs associated with risk exposure.

In Chennai's biotrash economies, individuals' willingness to take on risk does not operate in the realm of "collective exposure." Instead, risk operates as a privatized resource, akin to labor power. That is to say, the risk economy of biotrash is almost a straight exchange economy in which a willingness to take on risk, through specific work or labour practices, itself creates opportunity to earn money. Here, risk is what makes possible the oft-invoked dynamic of

ragpickers—how they conjure something out of nothing. Investigating regimes of medical waste insistently points to risk as central to these waste economies and any value they create. Risk is the toxic, magic ingredient in the making of value out of biotrash. Taking on risk allows medical garbage workers to extract the value out of biotrash.

Thus the narrative of globalization that underwrites biotrash in Chennai is not only a narrative of things (and people) going places. It is simultaneously and specifically a narrative of *neoliberal* globalization—that is to say, a story of the privatization of roles (or at least notional responsibilities) that the state had earlier undertaken. Chennai's biotrash economies demonstrate one such neoliberal narrative: that of the reclassification of biomedical waste from "public bad" (to be combated by municipal sanitary regulation and infrastructure) to "private good"—or perhaps more accurately "private good-bad" (in the form of individuals' taking on of risk exposure as a marketable commodity).

In this vein, the taking on of risk among biotrash's frontline workforce is glossed in appreciative tones as an example of deeply resourceful poor people who are able to conjuring something from nothing. Regular reiterations of Indian "recycling" workers' inspiring predisposition toward enterprising capitalism and efficiency in the waste reclamation industries are not hard to find.[23] One classic example is Larry Summers' 1992 *Economist* memo about population in which he sketched out the case for selling first world pollution to the third world. But you don't get rid of the risk simply by "rethinking" it. A neoliberal redux of biotrash economics rebrands "risk" as "opportunity."

Global Celebrations and the Neo-Liberal Indian Syringe

For the remainder of this paper, I want to change gears to turn to a discussion of one particular object in the waste economy of medical garbage of Chennai—the disposable syringe. To do so is to court controversy. The recovered, repackaged, resold and reused syringe is, literally, a loaded object. It is loaded with stuff—both material and affective. It is problematic as an object of enquiry. Syringes do not make up a statistically significant amount of the overall medical garbage waste recovery industry. Disposable syringes are only one item within the substantial

[23] See for example Dhillon/BBC 2008; Kalpana Sharma, *Rediscovering Dharavi: Stories from Asia's Largest Slum* (Delhi: Penguin, 2000), pp. 73-124. This chapter is titled "Turning Scrap into Gold."

plastics segment of the biomedical waste recovery industry. Other recoverable biomedical waste plastics include IV (intravenous) and other tubing, blood and urine bags, catheter kits, surgical gloves, and pumping sets. Nevertheless, when tasked with writing this essay, I found that in published work—compared to blood bags, for example—syringes are available.

Let me begin then with a question: What exactly is the problem with re-using (disposable) syringes? There are literally two parts to this question. One is the needle and the other is the syringe (the barrel; the plastic part). The answer to both questions, however, is the same: infection and cross-infection. The re-use of disposable (and indeed all inadequately sterilized) syringes can cause infection by microbial bacteriological agents as well as cross-infection of any disease that has anything to do with blood. Not only is there a risk of cross-infection among those who test positive for HIV/AIDS and HBV and HCV (Hepatitis B and C), any parasitic disease that has a blood stage (e.g., malaria) can be transmitted through improperly sterilized re-used syringes.[24]

It was not until the middle of the twentieth century that disposable syringes were manufactured and used in large numbers.[25] Like syringes, biomedical plastic disposable items have been mass produced and used in the United States for the past 50 years.[26] Although the disposable syringe was initially manufactured in the United States during the early 1950s, only by the late 1970s, was uptake of disposable syringes among health practitioners across the globe significant.[27] My recent query to all clinicians within earshot trained in the developed world—"When do first recall using disposables?"—has been met with the uniform indignant reply: "I've always used disposables. How old do you think I *am*?!" Yet uptake was indeed slow in the 1950s, 1960s and

[24] H. V. Wyatt and S. Mahadevan, "The Double-Edged Sword: Injections." *Indian Journal of Community Medicine* 18, 4 (1993): 149-151. H. V. Wyatt and S. Mahadevan, "Appropriate Research: Unnecessary Injections in India." *Current Science* 64, 3 (1993): 145-146.

[25] The invention of the hypodermic syringe, with its hollow pointed needle happened simultaneously in Edinburgh and Paris by Alexander Wood and Charles Pravaz in 1853. In 1954 as a response to the new Salk polio vaccine, Becton, Dickinson and Company created the first mass-produced disposable syringe and needle, produced in glass. In 1955, Roehr Products introducted a plastic disposable hyperdermic syringe called the Monoject. In 1961, B-D introduced its first pastic disposable syringe called the Plastipak. See http://inventors.about.com/library/inventors/blsyringe.htm; accessed 20 April 2008.

[26] For one history of US-based medical tubing manufacture, see http://www.teel.com/company.php?area=about and http://www.teel.com/company.php?area=markets. Accessed 16 April 2008.

[27] Anecdotal evidence corresponds with this. However, the paraphernalia of disposable syringe disposal—such as sharps boxes and the segregation of biomedical waste from other general waste—arrived later. One account puts it at the mid-1980s. Email correspondence between author and Warwick Anderson, 22/04/08.

1970s. [28] In part this uptake was slowed by the substantial financial costs it brought in its wake. A very cursory survey of the medical literature suggests a substantial resistance among health care professionals in the United Kingdom (and, one would imagine, their hospital managers).[29] Despite widespread awareness of the infective dangers of re-using syringes British practitioners in 1973 and 1974 noted that

> …the energy crisis and shortage of petrol have, we believe, made many people think about resterilising disposable syringes and/or needles. In our hospital it was thought wise to save used disposable syringes to reuse them in case of any future shortage of supply… The B-D Plastipak, which are made from polypropolylene, were autoclaved many times without any alteration in their shape or function.[30]

The authors did however go on to condemn such practices in light of the risk of cross-contamination, particularly of hepatitis.

Within India, although substantial documentation of the practice of administering medicines through a break in the skin (variolation) dates from the mid-eighteenth century (and indeed it is suggested that it was a widespread practice far before that),[31] anecdotal evidence suggests that increased use of disposable plastic syringes started to become significant in the early 1990s—at a time when the practice was caught up in a greater concern about the spread of HIV and AIDS in the early to mid-1990s.[32] I suspect that it may have been slightly earlier, linked to the 1985 launch of the Government of India's universal immunization program.[33] One former clinician

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[28] S. J. Soltis, "Why One Hospital Switched to Disposable Syringes and Needles" *Hospitals* 33, 16 (1959): 72; S. R. Collantine, "A case for the Adoption of Disposable Syringes" *J R Army Medical Corps* 108 (1962): 205-7.

[29] In the early 1980s, much of this debate and the research that both produced and was produced by it was undertaken among insulin-using diabetes patients. This was in part due to the circumstances that saw disposable syringes used widely in hospitals but not issued to diabetic patients. See for example, B. J. Collins, B. K. Spence, S. G. Richardson, J. Hunter, Son and J. K. Nelson, "Safety of Reusing Disposable Plastic Insulin Syringes." *The Lancet* 321, 8324 (12 March 1983): 559-561; R. Vickers, "Reusing Disposable Plastic Insuilin Syringes" (letter to the editor), *The Lancet*, April 9, 1983, p. 829.

[30] M. P. Holley and C. A. Bartzokas, "Disposable Syringes" (letter to the editor), *The Lancet*, March 23, 1974, p. 509.

[31] J. Z Holwell, *An Account of the Manner of Inoculating for the Small Pox in the East Indies* (London: Becket and de Hondt, 1767), cited in David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley and Los Angeles: University of California Press, 1993), pp. 125-132.

[32] Email correspondence between author and Mark Nichter, 17/04/08.

[33] Mark Nichter and David Van Sickle, "The Challenge of India's Health and Health Care Transitions." Alyssa Ayers and Philip Oldenburg (eds), *India Briefing: Quickening the Pace of Change* (Armonk, NY and London: ME Sharpe, 2002), pp. 166-67.

narrated: "I've not been in clinical medicine in years and years, since 1980, when we hardly had any disposables. [Then], the problem was lack of infrastructure to sterilize syringes, lack of autoclaves, and above all lack of electricity… We would in rural areas at times use a kerosene stove and a pressure cooker [for sterilizing]. I always wondered about the manufacturers who pushed disposables on our agenda—what a huge market!"[34]

Nevertheless, syringes are neither the most prevalent items in India's biotrash recovery industry, nor the necessarily most dangerous. According to one study, disposable syringes amount to only 0.3-0.5% of solid wastes produced by Indian hospitals (compare with the 7-10% represented by other medical plastics).[35] India's Ministry of Health estimates that 92% of all plastic syringes used in India do not find their way back into the system.[36] Although no one should be at the sharp end of dirty needles (and one should bear in mind that the Government of India estimates that India needs 210 million injections annually[37] largely for immunization purposes; "therapeutic" injections and injections carried out by private health care providers are not included in this figure), among the items of biotrash, the discursive weight of used, reprocessed disposable syringes far outweighs its statistical prevalence as an agent or mode of potential cross-infection. The specter of the re-use of disposable syringes emerges time and again as emblematic of a dystopic biomedical modernity run amok in the global South.

What gives this syringe its bite? There are some generic reasons. More than other items of medical plastics such as blood bags or IV tubing that are recovered, repackages, resold and reused, the syringe exists at the interface of practitioner-patient relations. More than other medical plastics, given the increasing prevalence of immunization practices across the world since the middle of the 1950s, the syringe is an item with which people have personal histories and one that is easily identifiable. The experience of getting an injection is that of short-term discomfort for subsequent benefit. We submit to get better (or to avoid getting ill altogether).

Further, the syringe is more than the sum of a technology or practice. The syringe a holds an importance beyond its immediate function; the syringe—or rather, the injection—is a metonym

[34] Email from Mohan Rao to author, 23 April 2008.
[35] A. D. Patil and A. V. Shekdar, "Health-Care Waste Management in India." *Journal of Environmental Management* 63, 2 (2001), p. 211.
[36] Dinesh Sharma, "India to Use Auto-Destruct Syringes to Stem Infection from Re-Used Needles." *The Lancet Infectious Diseases* 4, 10 (2004), p. 601.
[37] Dinesh Sharma, "India to Use Auto-Destruct Syringes to Stem Infection from Re-Used Needles." *The Lancet Infectious Diseases* 4, 10 (2004), p. 601.

for the biomedical therapeutic encounter. Medical sociologists and anthropologists of India have pointed to the syringe—both as an object and as an experience—as a key trope of biomedicine. [38] One author has claimed: "[for the third world,] injections and the syringe have become the symbol of modern medicine."[39] In Tamil Nadu the ubiquitous question greets patients returning home from a visit to the doctor: "*Uusi pottuttacca*?" Did you get/did the doctor give an injection? But these are not the questions of the urbane middle classes, this instead is the standard query uttered by those of the slum and the village—the "premodern" consumers of "modern" medicine. The popularity of injections among patients, particularly for administering quick, symptomatic relief, is well documented.

Equally well documented, however, is the persistence of "irrational and unsafe injections practices [which are] rife in developing countries."[40] According to this substantial body of research, not only does the developing world inject too much, too often and the wrong things, this appears to be at least partly due to patients' demands as consumers.[41] Some researchers have concluded that although injections (classed as "therapeutic" rather than "immunizing") are regularly asked-for by patients, the reason that they are so well-entrenched is due to their profitability for practitioners who can charge more per patient visit if the visit includes administering an injection.[42] As a sign of the modern, the syringe in the Indian biomedical context is always already repackaged. And thus the dirty syringe is a betrayal.

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[38] Mark Nichter, "Popular Perceptions of Medicine: A South Indian Case Study," in Mark Nichter and Mimi Nichter (eds), *Anthropology and International Health: Asian Case Studies* (Australia: Gordon and Breach Publishers, 1996), p. 218. Mark Nicheter, "The Layperson's Perception of Medicine as Perspective into the Utilization of Multiple Therapy Systems in the Indian Context." *Social Science and Medicine* 14B (1980): 225-233. H. V. Wyatt, "The Popularity of Injections in the

[39] H. V. Wyatt, "The Popularity of Injections in the Third World: Origins and Consequences for Poliomyelitis." *Social Science and Medicine* 19, 9 (1984): 911-915.

[40] M. Rajasekaran et al, "Injection Practices in Southern Part of India" *Public Health* 117 (2003), p. 208. "Irrational" is mobilised not only in this article but throughout the literature that seeks to describe non-normative injection practices in the developing world.

[41] Anne Vibeke Reeler, "Injections: A Fatal Attraction?" *Social Science and Medicine* 31, 10 (1990): 1119-1125; Mark Nicheter, "The Layperson's Perception of Medicine as Perspective into the Utilization of Multiple Therapy Systems in the Indian Context." *Social Science and Medicine* 14B (1980): 225-233; H. V. Wyatt, "The Popularity of Injections in the Third World: Origins and Consequences of Poliomyelitis." *Social Science and Medicine* 19 (1984): 911-915. S. van der Geest, "The Illegal Distribution of Western Medicines in developing Countries: Pharmacists, Drug Pedlars, Injection Doctors and Others. A Bibliographic Exploration." *Medical Anthrpology* (Fall 1982): 197-219.

[42] H. V. Wyatt, "The Popularity of Injections in the Third World: Origins and Consequences of Poliomyelitis." *Social Science and Medicine* 19 (1984): 911-915.

III. Silence, history-writing, and the other value in biotrash

How is it that syringes come to be re-used? Some research has documented practitioners reusing disposable syringes, and have concluded that practitioners engage in this behavior as a cost-cutting measure. The uptake in India of disposable syringes broadly follows the distribution of wealth—first in the cities and then elsewhere[43] However, what is missing among the questions that drive analyses of the reuse of disposable syringes among practitioners is any sustained discussion of the recovery, repackaging and reselling of syringes. Documentation of the role of the syringe in the biomedical waste recovery market in India remains largely confined to the popular broadsheet media rather than entering the realm of academic research.[44] When biomedical waste per se enters the academic purview, it is in terms of suggestions for "best practice" among clinicians and clinical facilities in light of recently-enacted regulatory regimes.[45] This scholarly community is particularly concerned to emphasize the scale of the problem of inadequate sterilization procedures and the re-use of disposable syringes (and thereby the possibility of cross-infection).[46] Yet clinicians have long been aware of the re-use invited by disposable objects. For example, in a 1967 resolution, the American Medical Association called for new designs to prevent the re-use of disposable syringes (something that only became available in 2002).[47] In a more recent environmentalist turn, some work has investigated recycling possibilities of medical plastics, but concluded (perhaps thankfully) that the "the recycling potential of plastics generated in hospital cafeterias was much greater than that in other departments."[48]

What accounts for this silence regarding resale, something that is tacitly acknowledged to be a widespread, conditioning feature of syringe use in India? I suspect that this silence is part and parcel with the nature of value in biotrash. For the reselling of disposable plastic biotrash to be profitable, disposable biotrash has to be disposed of while it is in a particular state: *used* but still

[43] M Rajasekaran et al 2003: 212.
[44] For example see The Statesman (Calcutta); 29 July 1999.
[45] For example see A. D. Patil and A. V. Shakdar, "Health-care Waste Management in India." *Journal of Environmental Management* 36,2 (2001), p. 211.
[46] For example, "As many as 7.5 billion health care injections are administered each year with 'dirty' needles," in S. A. Tamplin et al, "Issues and Options for the Safe Destruction and Disposal of Used Injection Materials." *Waste Management* 25 (2005), p. 656.
[47] Tamplin et al (2005), p. 656. Resolution 26 at the AMAs' 1967 convention.
[48] Byeong-Kyu Lee et al, "Analyses of the Recycling Potential of Medical Plastic Wastes." *Waste Management* 22, 5 (2002), p. 461.

usable. The only places that get rid of such valuable trash in such an organized and efficient manner are the rich places—like Hospital A—corporate hospitals that calculate that they have more to earn by paying someone to take their trash than they have by extracting its value themselves. Thus the betrayal of the syringe in the telling of biotrash is the global neoliberal betrayal of the Indian modern; of its swallowing up of itself. As the second biomedical waste disposal manager put it: "*We* are spoiling our own future." Disposable syringes meet an unscripted fate of repackaging and restreaming, made possible through the (plausibly deniable) compliance of big medicine in the global medical tourism market. There is a convergence achieved between silence and wealth in neoliberal India. Not only is it not a fit object of social scientific investigation (itself a middle class pursuit), but in my evening retellings of the story of the trail of biotrash, the syringe was always the show-stopping, salacious detail; the detail that my audience demanded in detail and then clung onto, speechless.

Is it possible to write biotrash history?

There are various ways by which one can string together these episodes in biotrash and constitute as a history. One is spatial. That is, the colonial archive abounds with examples of how land use patterns under colonialism addressed urban sanitation as *the* question of urban governance.[49] Work on urban governance in postcolonial Chennai suggests that the primacy of sanitation for urban governance remained unchallenged until late in the twentieth century. [50] Nevertheless, the reason that narratives of state regulation and governance of urban waste remain so important, even as narratives of incommensurability or failure, is that they provide a constant set of governmentalizing relations, while also underscoring the fallacies in reading this text as anything but its own invention. The challenge of writing a history of the present for biotrash in Chennai stems in no small part from the fact that the official record connects so little—or at best extremely obliquely—with on-going observable practices. Even the most talented diviners of the

[49] Similarly, in another piece, I am trying to work through the implications of narratives of public health in nineteenth-century Britain without entering into a straight comparison between contemporary Indian and Victorian Britain—aka Charles Dickens do Similarly, in another piece, I am trying to work through the implications of narratives of public health in nineteenth-century Britain without entering into a straight comparison between contemporary Indian and Victorian Britain—aka Charles Dickens does Chennai—thereby engaging in a problematic narrative in which Britain's urban industrializing past serves as the commensurate form of waste management for India's future. es Chennai—thereby engaging in a problematic narrative in which Britain's urban industrializing past serves as the commensurate form of waste management for India's future.

[50] R. Srivatsan, personal communication, March 24, 2008.

archive will find challenges in locating the divergences from the official scripts. How does one recover the gaps between the official narrative and all that swirls around it?

I am left at the moment with the possibility of pursuing these trails of silence. As Pritham Chakrabarty, my partner in research, observed as we sat stunned after finding the biomedical waste bags from Hospital A opposite Kodungaiyur dump; mulling over the deep fissures among various accounts of the circulation of biotrash, despite there being no consistency in what people say, there is a deafening consistency in what people do not say—that there is a roaring business in second sales of biomedical waste. Particularly in light of investigations into the contemporary, the rubric of silence hanging over the archive and official accounts of the management of urban waste economies, is it possible to connect the silence of the archive to the silence of my cosmopolite friends who served as my audience as I recounted events of my days in Chennai? How does one read their silences? What every managerial account finds unspeakable is the traffic in biotrash. What then, if any, is an appropriate response to the value chain of biotrash?

Those other values

If the "value" of biotrash is to be found both in a market as well as in what has been variously described as "ethics," where and how do the two come together? How can an economy of risk-value exist without a discussion of other affective value? Through a closer engagement with this dynamic of desire and transgression brought into being by (bio)trash talking articulate those other values? Among Chennai's biotrash brokers, expressions of ethical anxiety have been few and far between. Licit if illegal, biotrash displays a routinization, normalization and embeddedness within broader value chains of practices of recovery of middle class waste. English newspapers and whiskey bottles sit comfortably alongside the consumption that produces the detritus of corporate hospitals. Among my English paper reading, single malt-drinking and Hospital A-using Chennai-ite friends, my recounting of my days' events of the soggy if not murky trails of biotrash over evening drinking sessions (thanks to duty free and other supply chains) was met with them shaken heads and sitting quietly for a moment. The silent response to the retelling of biotrash was confined mainly to the audiences who themselves were completely enveloped by the waste economies of biotrash, the English paper, the milk

packets. Those who go to Hospital A for liver treatments, high blood pressure and diabetes diagnoses. Our silence, then, is a silence of realization and recognition of our own imbrication in these economies.

What breaks these continuities in silence, however, is class. Mute witnesses did not include those who did not see themselves as the entitled recipients of neoliberal Chennai's new riches, nor the planner/managers of this prosperity. Thus the sorters of Hospitals A's waste, whom I met on their lunch break opposite Kodungaiyur dump, had no investment in silence. Similarly, the women sorters at the official biomedical waste disposal site were frankly cacophonous. The final interruption of silence was that of the driver who came along with the car I had hired to track down biotrash. After driving me around for a few days during my most recent investigation of remote sites in the value chain of biomedical waste recovery in and around Chennai, the driver asked as he dropped me back to my friend's flat where I was staying, politely but directly: "Madam, what exactly are you doing?" As I explained what I was working on, he became progressively more agitated at the whole sordid business. Finally he spoke: "You must let me help you in this work. I will come with you and stand there with my arms folded across my chest and when you ask your questions these people will have no choice but to give you answers (and, by association, account for their misdeeds)!" And, whether to emphasize his moral uprightness or to demonstrate his qualifications for such service, he exclaimed: "I am a blood donor!" I thanked him, said that I would think about it, and we fixed up for the next day's travels. This was a man in his mid-thirties, married with two young sons and who, like many Muslim Indian men before settling down to marriage, had spent a number of years working in the Gulf—in his case, as a driver in Saudi Arabia. As such, he was a man who represented another face of a globalized India—an India with a large migrant working population. So this man was both a careful driver as well as a traveler of a different circuit. A man who survived the dangers and possibilities of the Gulf and returned home with enough to marry if not start own his own business, he was clearly at home in demonstrating his guts and his morality as inextricably linked.

Towards an ending, against silence: Everybody loves biotrash

"Biotrash" has emerged from my initially flippant conversations about an unspeakable subject. It has caught on as a catchy term, in which the most widespread response among other (generally non-historian) academics is: "Oooh, biotrash." They savor the transgression of the word and the topic. Then quickly comes the follow-up query: "Can I steal it?" The widespread delight in the term biotrash perhaps is as much as anything about marking our anxieties about our positions and implication and imbrication within economies of morally dubious practices and our precarious moral-ethical status as documenters of these practices and immoral economies. For some time I worried more about these transgressions and my own flippancy as a way of palming them off onto some one else. Now, an emerging grounding in the specificities of waste economies belies an initial giddiness. Hopefully, biotrash sets up a challenge to biocapital; to shining India.

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