

CHAPTER 6

Keeping soils healthy with shit: what we can learn from Chinese farmers *

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Thanks so much to Ed for organising this conference, and to the Food Studies Centre at SOAS for hosting it and for convincing people that shit is a worthy topic of study and not just jocularity. I feel that in coming here I have found my niche with a bunch of very quirky people who are willing to talk shit for an entire weekend...

I have the extraordinary pleasure of being a historian of China, where there is a wholly different culture and affect around questions of bodies. People openly and without any sense of emotional charge talk about the consistency and regularity and timing of evacuations. People still use humanure to fertilise their fields, they talk about how it makes their vegetables very tasty, and there is a wide range of ways in which this is done.



Fig. 1: “Chinese woman carrying nightsoil” [Wellcome / CC]

Since I only have twenty minutes, I shall do a fast-moving survey. I want to state at the outset that “nightsoil” is the most common term that people know of, but that comes from the European experience. In China the humanure – the human manure that was added to animal manure to fertilise fields – was collected and distributed early in the morning rather than at night. This was done early in the morning because China did have a similar culture of making sure that it got off the streets before most people were up and about, because obviously there is a smell as you collect and move through populations. So I prefer to use the term “humanure”, a term which originally came from Joe Jenkins, writing in 1994, when he self-published his *Humanure Handbook*. This is a quote from the website for the book:

This is the fourth edition of a self-published book that no respectable publisher would touch with a ten-foot shovel. The first edition was published in 1994, with a print run of 600 copies, self-funded by Joe Jenkins, which the author expected to watch decomposing in his garage for the rest of his life. Now, 24 years later, the book has sold over 65,000 print copies in the US alone. It has been translated into 19 languages and has been published in foreign editions on four continents. He recently, in 2021, followed up with his *Compost Toilet* handbook, the second half of which gives case studies of his work around the world, in the US, in various African countries and in South America, putting in compost toilets where people had pit toilets that children could fall into because the openings are so large that they die.

[I'm sorry – I get very emotional about all this... Because those children have to use the toilet, and because there was no-one there to help them.]

We are talking about places where people are farming, and where they need access to fertilisers that don't cost a lot of money. For a small-time farmer, chemical fertilisers are very expensive. And you can explain to them very basic skills about maintaining a compost toilet, about how you can have a clean, non-smelling, sanitary place, and you get good rich humanure out of it. The procedures for making it sanitary and odour-free are quite basic. But it is something that has to be learned.

So this leads to my politics and my attitude to all this. I have encountered historians in this world – the history and use of humanure – who have an attitude that says that the flush toilet and sanitation systems and municipal sewers superseded a practice that was really dirty and awful and bad, and look at archeopaleontology, and we know that everyone had intestinal tapeworms, and wasn't that awful... And yes, it was. It was awful to transmit disease. But there is no reason to throw the baby out with the bathwater. We need to recognise that it is quite extraordinarily easy – in technical terms – to render humanure safe. And it is extraordinary as a fertiliser. It has an abundance of the nitrogen, and phosphorus and potassium which our soils need.

I also really take to heart the call by Malcom Ferdinand, in his book *Decolonial Ecologies*, that we cannot solve our climate crisis, we cannot figure out as a human species how to care for the planet properly, until we also learn how to care for each other properly. This means that we have to address and confront issues of racism, heterosexism, etc. He focuses primarily on racism in the book, in which he discusses the history of the trans-Atlantic slave trade, but he makes the same case, namely that all systems of oppression are interlinked, and they are interlinked with our ecological pressures and our inability to care for our planet as a whole.

By the way, when his book was originally published in French in 2019, it was called *Une écologie décoloniale*, and he insisted that it be called “*Une*” [“A”], because he was not trying to say that there was only one way of doing things.

And then, in the China field, this is a political category. The word *nongmin* in modern China means a farmer, but as a socio-political category it is what I call *nongmin-as-peasant*, following cultural anthropologist Lili Lai. You can see it in this very brilliant book, which is now in English with Verso Books, *China in One Village* by Liang Hong, a famous professor who returned to her home village and wrote this part-memoir and part-ethnography, about how village culture has been entirely abandoned, and evacuated of all of its riches, including its people as riches. That is even more deeply theorised by anthropologist Lili Lai – but without getting too deeply into these kinds of discussions, you have to think of a farmer in China whose labour has been monopolised by the communists, as a political category. It's not even related to the activity of farming. The word *nongmin-as-peasant* is a socio-political category that leaves them as second-class citizens in their own country. And the communist state has become very clever at extracting the value of their surplus labour and using that to fund urbanisation and the comfortable life of the urban middle class and upper classes.

So my project is also pushing against this inherent bias against rural people and rural life-ways. And within the Chinese context the use of humanure is largely thought of as a rural activity, even though that is not fully the case – there are also people with little gardens in the cities where they use humanure.

I am also quite concerned about soil extinction. There is a lot of debate about whether soil will actually become extinct. But we do know that our soils, worldwide, have been terribly depleted of the basic nutrients that plants need to grow. The debate is similar to the question of the dying-out of pollinators, such as bees. If we arrive at a crisis point, we will not even be able to grow our food for all the people on this earth, and we are actually right now at a point where we are killing each other – killing other human beings – through lack of food, through our own stupidity.

Humanure is not only a great source of the nutrients that we need – the nitrogen, phosphorus and potassium, but it has an abundant microbiome within it. So it will attract the hugely diverse fungal communities, and microbial communities – the good microbes that we want, not the pathogenic ones – that make the whole soil really truly rich.

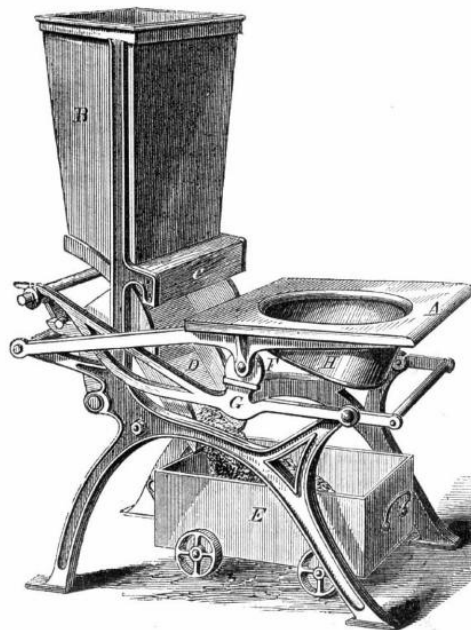
So now some other fundamentals. Within China, farmers used humanure as one of many different fertilisers, for around a millennium. Historians attest to its usage around the tenth century. By the thirteenth century there was a rich market in humanure. So here we have to understand it as a commodity, not necessarily as a waste product. The concept of humanure as a waste product is really relatively recent – it arises in the nineteenth century, when it becomes institutionalised in the context of public health. In China it was a commodity in an agricultural society, where the people who are farming can observe that it enriches soils and produces lovely vegetables, and so on. It is also a commodity in the sense that yes, there is a rich industry for humanure, but the people that actually touch it the most closely are exploited labourers. For example, this photograph of a woman worker [Fig. 1]. She is most likely an illiterate woman; and she might be an older widow. That was common; in the North the porters are almost exclusively male, but in the South you have roughly half male and half female. There was a propensity for widows to be pushed into this trade, because they don't have any other options. It is not a desired profession; it is not a respected profession. But the people *above* her – the nightsoil headmen, or the nightsoil gang lords – are making big money. So this is why it is so challenging for the Chinese state, when in the 19th and later 20th century they get interested in cleaning up the industry, because there is big money involved, and the gang lords are people who are very adept at exploiting their labourers and using their social connections to maintain their stranglehold on the industry.

We also have a photograph that shows a boat, and that gives you a sense of the movement – after the humanure was moved through the streets, largely on shoulder-poles, especially in southern Chinese areas, it would be taken to a river port and moved on a small barge, and then taken by river down to a farming area, and the farmers knew which river port to go to, to acquire it. As far as I can tell, in the South they kept the humanure too wet, whereas in the North they dried it. So they didn't actually process it properly in the South, to get rid of the helminthic parasites and other parasites. But without humanure fertiliser it is a fairly incontrovertible fact that China's population would have been much smaller, and farms would have been a lot less productive. In fact, even though China is a large country, it is extraordinary how quickly they got to have a large population. The city of Hangzhou in the thirteenth century had a population of a million people, and Hangzhou was one of the main sites of the humanure industry.

So we know that the farmers and their agricultural society were very smart in their tending of the soil. In southern China they were achieving double or even triple cropping, aided by having a temperate climate. But you cannot double or triple crop if your soil is exhausted. So they are using soy bean oil casings and dredging river mud, and they're using humanure and animal manure, they're using feathers and grasses, all kinds of manures. The level of productivity of their soil was an extraordinary thing.

But it is also a question of politics. Because we know that, even with all these fertilising techniques that were honed to near perfection at least by 1900 and maybe much earlier, Chinese farmers were overwhelmingly very poor. Which is important when you add the political lens, because the Communist Party of China was founded in 1921 and doesn't come into power until 1949, and at that point China is deeply impoverished; it has been war-torn for decades, they have high rates of endemic diseases, a lot of them gastro-intestinal infections that were transmitted through the use of humanure as fertiliser. The People's Republic of China state, from 1949 through the 1950s, is charged with uplifting the rural proletariat. That is where the party differed from their Nationalist predecessors, the KMT or Guomindang who fled to Taiwan in 1949. The Communist cadres said we want to lift you out of poverty, we belong to the Communist International, we're now isolated from various parts of the world, we're not getting the chemical fertilisers in, in part we are making our own, but it's not enough. So the Communist Party approves the use of humanure resources, despite the disease situation, because they need it. They are very much under pressure, because the soil has been doing so much work for so long that by now it's utterly exhausted.

The apparatus shown is intended for fixing in an internal or ordinary closet where there is no pit or vault, or on an upper floor. The deposit falls into a small trolley or wagon



which is drawn out and emptied when required. A is the seat, B the earth reservoir, C the valve and the piece of timber against which it strikes, D the shoot, E the wagon, F G the lever and roller for working the valve, H the pan.

Fig. 2: Earth closet, on the pattern of Rev. A.C. Moule of St John's College, Cambridge

Now I want to speak in more explicit terms about the form of this system. In the South, as I mentioned, the traditional Chinese habit of manuring in which they mixed faecal matter and urine meant that they were using the humanure too wet. The reason that you can get from a dry compost toilet a fertiliser that is completely safe is that for a billion years mesophilic and thermophilic bacteria have been at work processing the waste of the world's creatures. They know how to process our shit. That's what they do. They eat it. And they out-compete the pathogenic bacteria. Think of it this way – a pathogenic bacterium can infect us because it has adapted to our body temperature so that it can live inside our bodies. If you raise the thing that it is living in beyond the temperature of the human body, it dies. Mesophilic bacteria get the humanure compost pile to about 100 degrees Fahrenheit, and they prepare and open the path for the thermophilic bacteria,

which bump it up to around 120 degrees. All you need to do is get a long compost thermometer, stick it down into the heap, keep the heap at 120 degrees with the top layer insulated for about a week, and you can be sure that the pathogenic bacteria are gone. They cannot survive in that environment. However, if, as in South China, they're keeping it liquid, because in that way it is easier to scoop it out and pour it onto the fields, it is too wet for the bacteria to survive. The mesophilic and thermophilic bacteria cannot live in those conditions. They literally drown, because it is too moist. In the North, as I mentioned, because it is cold in winter, they dry out the humanure and other animal manures and make huge manure fields. When dried out it is too dry for the bacteria to survive. They can't go in there and out-compete the pathogenic ones. So once that stuff is reconstituted, through watering plants, you can still have the pathogenic bacteria inside it.

And I know as a historian of medicine and public health, the very high endemic rates of schistosomiasis, cholera, and all those other diseases that transmit that way, is an absolute indicator that they are doing it *wrong*. So I am not saying that we should go and do it the way that they did. And I am also not saying that we should exploit labour. If you are interested in the fine print of this argument, there is a recent article that I published in *Past and Present* that shows just how cunningly the communist state exploited these labourers while calling it liberation.¹

So, fundamentally, I think that our biggest hurdles are not technical. The technicalities of making humanure as a safe compost and building safe, wonderful, not-at-all-smelly dry composting toilets are so simple. I've taught my five-year-old son how to do it... he knows how to build and use a dry composting toilet... He loves using them... But culturally, we have our X-factor, the fact that even the poo museum in London does not even have a human poo because "why would you do that?"... And at the discursive level, no-one wants to be a farmer, no-one wants to go and do that... And then the political discourse – "Well, obviously sewage systems are better... That's how we did away with the stench of the past..." Also also the emotional "Yuk" factor. Here we have an image from 1860 – "Patterns of the Earth Closet" [Fig. 2]. In the 1960s in China they were talking about the "harmless" humanure process, and they knew how to neutralise the pathogens – they had five different ways of doing it, and these were written out in detail.

So, I have to end now. I just want to re-state – *it is not a technical problem*. The technical issues are so easy to resolve. Kids can do it. Rather, we have to address our cultural, discursive, political and emotional barriers to dealing with humanure, so that we can continue to be able to feed each other.

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NOTES

1. Nicole Elizabeth Barnes, "The Many Values of Night Soil in Wartime China," *Past & Present* 259.1 (May 2023), open access at <https://doi.org/10.1093/pastj/gtac021>.

* This chapter is an edited audio transcript of the author's conference presentation.

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Illustration 2: Metaphorically speaking [1]: “This tank is full of political promises”



Illustration 3: Metaphorically speaking [2]: *El cagador cagado* [The shitter beshitted]