DK: This is ARREST from the Punk Ethnography website, my name is Douglas Kidd.

ARREST is a series of short pieces that use anecdote, theory and reflection to share an idea that we hope you find arresting- an idea that stops you and helps you think a little differently.

For further details about Punk Ethnography please visit www.punkethnography.org

Permanent Agriculture

When I moved into my boat, the toilet was set up as follows: when you flushed, a macerator would grind up any solid waste and then everything would be flushed to a large waste water tank that is under the kitchen sink. This was a terrible system: a 400 litre tank of sewage in your kitchen is no fun. Each time you flushed, the force of the water rushing to the tank would cause a strong stink of sewage to waft up through the plughole of the kitchen sink. Within a few weeks I ordered a composting toilet and installed it. The noise is gone- no pumps or macerators whirring away. The smell is gone- the toilet separates solid and liquid waste and the solid waste is mixed with wood pellets and there is really no smell. And the resulting composted humus I use in planters on the deck of the ship to grow food.

Why do I think a composting toilet should be an arresting idea? I want to start with an obscure text.

Farmers of Forty Centuries, Permanent Agriculture in China, Korea, and Japan, is a book written in 1911 by Franklin Hiram King.

King writes the book to inform his American audience about the agricultural methods of Far Eastern farmers. At the time, he claims, Chinese farmers achieved far superior yields from their lands than American farmers, requiring around two acres of land to feed one person, when Americans needed 20.

King notes that Chinese, Korean and Japanese farmers put far more manual labour into their fields. They collect and use animal waste, compost all the food waste they generate, and use the silt from rivers and canals on their fields. He goes on to comment on the careful use of water to irrigate fields and the choice of crops, including legumes which make nitrogen available to other plants. He also notes how the diet of those he is studying include less meat than in America and links this to how much less efficient meat is at delivering calories from land. He discusses how terraces are constructed and managed for tea, how rice paddies work, how the land is irrigated and how crops are rotated.
Summing up what is most important to their success, he thinks it is the way farmers preserve the richness of the soil by returning nutrients to it constantly.
He focuses especially on the way all human waste is collected and added to the soil.
King says:

> *One of the most remarkable agricultural practices adopted by any civilized people is the centuries-long and well nigh universal conservation and utilization of all human*

> *waste in China, Korea and Japan, turning it to marvelous account in the maintenance of soil fertility and in the production of food.*

I have seen this practice still in use in parts of Hong Kong and China, where human waste is fermented before being used, dried and spread as powder, or diluted and poured directly onto the soil.

King's subtitle for his book is the earliest use of the term Permanent Agriculture I am aware of. In using the adjective permanent to refer to these agricultural techniques he is commenting on their longevity. These are agricultural practices that have been going on for centuries and can maintain the population in their current lifestyle indefinitely. The systems are resilient to shocks and perturbations and there is a cyclical nature to this agriculture- nothing has to be added in from outside and no waste is building up anywhere.

As King writes:

Not only are these people extremely careful and painstaking in fitting their fields and gardens to receive the crop, but they are even more scrupulous in their care to make everything that can possibly serve as fertilizer for the soil, or food for the crop being grown, do so unless there is some more remunerative service it may render.

King contrasts this with the farming methods he sees in America and other western nations where, he notes, vast amounts of fertiliser are imported to enrich the soil.

The years following King's book did not see the spread of the permanent agricultural methods he was recommending. Instead, industrial agricultural methods extended and intensified around the world. Instead of using human waste to enrich the soil, we collect it and pipe it away, sometimes to be treated, but sometimes to be discharged as a pollutant into lakes, rivers and oceans. Our waste is removed as a nutrient and can become a toxin when it is released into different ecosystems.
To replace the lost nutrients, we mine and transport fertilisers at further expense, and to add to the farce we often replace human waste with bird or bat excrement.
I have seen this change in parts of China where modern sewerage systems have been introduced and farmers are forced to pay for fertilisers. I have seen fields and villages littered with discarded fertiliser bags since rubbish collection is not as advanced as the sewerage systems. Globally, stories of beaches and rivers too polluted to swim in and dead zones in oceans and lakes caused by sewage and fertiliser run off are far too common.

Sixty years after King's travels, a portmanteau of permanent agriculture was used in 1978 by Dave Holmgren and Bill Mollison to describe their approach to land management and settlement design. They had been working together in Tasmania for the previous decade, drawing on Aboriginal practices and traditional methods from around the world, and they called their idea permaculture. Mollison defined it as:

> *the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability and resilience of natural ecosystems.*

Permaculture was a direct response to modern agricultural practices, based as it is, on the creation of huge, flat monocropped fields involving extensive use of machinery, fertilisers and pesticides, and other industrial processes. In contrast, permaculturists will design systems with multiple species that grow well together and where the contours and variation of the landscape is used to facilitate the flow and storage of water. And just as with King's observations, the composting of vegetable, animal and human waste is crucial. Permaculture design ensures there is no such thing as waste. Every product of the system is used by another part to create a self-sustaining- permanent- agriculture.

In his book on permaculture design, David Holmgren lists 12 principles, and among them we find:
Use and value renewable resources and services: Make the best use of nature's abundance: reduce consumption and dependence on non-renewable resources. Produce no waste: Value and employ all available resources: waste nothing.

King's travels and permaculture are describing the same idea: human lifeways that emulate natural ecosystems.

There is much more we could say about modern agriculture and waste management, and there is much to be learnt from traditional and indigenous systems and alternative approaches such as permaculture. But in this short piece, the idea I wanted to arrest you with is much simpler. Every day we eat and excrete. What was once a simple process of taking from and returning to the land we live on, is now for most of us part of a much larger industrial process. My composting toilet is one small step towards some kind of cycle, and is an invitation to think about the kind of agriculture we contribute to: whether it is unsustainable and toxic, or one that leaves the soil as rich as we found it, as part of an ecosystem we can call permanent.

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