

## LEGAL CHEESE DAN PETERMAN



The three projects discussed here, the Chicago Compost Shelter, Store (cheese) and Advances in Bio-gas, traverse a number of related issues. The bacteriological processes which composting, cheesemaking and bio-gas production rely upon was arrived at as a necessary tool, the usefulness of which became apparent in dealing with complex material and social demands rather than as a starting point in and of itself. The application and nurturing of these processes, one of food production and the others of organic waste processing, are surprisingly similar to each other in principle and consideration of these biological processes allows one to confront the curious notion of simultaneous growth and decay. The bacteriological process of growth, exploiting specific conditions within processes of decay could metaphorically apply to much of my work. This is particularly true if one is to consider the processes of decay (social, physical, and economic) at work in most major American cities and further consider the organic "bacteriological" growth of events, and industries (scavenging, food production on abandoned property, composting, recycling, etc.) which can emerge from these conditions.

The American waste stream consists of a vast assortment of materials, in often unbelievable quantities. Not surprisingly the implications of how this matter is perceived and treated has a great effect on large groups of people and extended systems of production, consumption and disposal. Economic and ecologic issues are closely intertwined. Because of the tremendous neglect paid to it in recent history, the waste stream has been an important resource for many small scale, improvisational, ad hoc industries, particularly in urban situations with their inherent concentrations of both garbage production and unemployed people. Although current developments of waste and recycling have moved toward increasingly centralized "efficient" systems of material processing, it is the decentralized, improvisational models of waste handling and recovery which I find most appealing and in considering the extended socio-economic benefits of these localized approaches, it becomes apparent that they have the potential to be more efficient than centralized systems. This becomes strikingly clear in urban situations which have suffered severe economic decline, abandonment, segregation or a host of other urban maladies. Here, the waste stream is a never-ending resource which could be developed to maximize employment, environmental improvement, along with community stability and interaction.

The composting of organic matter is a simple, widely used process capable of providing humus for environmental improvements as well as offsetting waste-handling, transporting, and burial costs. Beginning with a large composting project initiated on Chicago's southside, The Chicago Compost Shelter was built. It was a public installation of an experimental shelter designed to stay warm throughout a Chicago winter by utilizing the heat produced by the decaying process of organic materials. It consisted of a VW van body which had been buried in a large pile of compost. The compost itself was primarily horse manure and woodshavings collected from the Chicago Police stables. This material, due to aerobic bacterial activity at

the interior of a compost pile, is capable of reaching temperatures of 131 degrees Fahrenheit (51°C). A small entrance way was added to the shelter along with skylights which allowed daylight to illuminate the interior. The van was large enough for a bed and some space conscious furnishings and came equipped with ashtrays, a mirror, seat with armrests, and if one cared to hook up a battery there was also a radio and dome light.

The shelter was constructed in December, 1987 and remained publicly accessible in a vacant lot adjacent to a recycling yard until it was dismantled in August, 1988. The shelter functioned better than anticipated, creating a very warm comfortable environment. Any odors or vapors produced by the decomposing manure/compost traveled upward and out the top of the pile, while considerable heat radiated into the interior of the VW van. Throughout the winter the shelter maintained a temperature between 70 and 80 degrees Fahrenheit and even warmer if the door was sealed tightly. On the coldest nights this meant close to a 100 degree difference from outside temperatures.

Over the winter the Compost Shelter developed a number of different uses; a heated lunch room for the employees of the recycling center who work outdoors; a science museum-like display of decomposition processes for school groups that occasionally visited the recycling center and most importantly, an emergency shelter for the transient population of scavengers doing business with the recycling center. Although nobody attempted to adopt the shelter as a permanent residence (a very real possibility given the local conditions of poverty and homelessness), it was frequently used as an overnight shelter. An old mattress was brought by someone and it remained in the shelter throughout the winter. Food wrappings and beverage containers were often left behind, as well as traces of wax from the burning of many candles.

Bio-gas production is somewhat less familiar than composting but exists in many different forms, perhaps most commonly as the inadvertent after-effect of burying large amounts of organic materials. It is often a by-product of waste water reclamation systems as well. On a small decentralized level it is well established in other parts of the world, in particular China and India. Bio-gas technology is based on the phenomenon of decomposition of organic matter in the absence of air. This yields a gas consisting mainly of methane and carbon dioxide. In isolated rural villages or farm communities the bio-gas plant can serve many purposes: an efficient means of sewage treatment; a means of processing organic materials into a readily usable fertilizer; a source of gas for cooking or lighting; fuel for gas engines which in turn power vehicles, pumps, or electrical generators.

The Advances in Bio-gas project itself is an awkward insertion of small-scale bio-gas technology into a typical apartment living situation. It acknowledges on the one hand the United State's world leading per capita production of waste, and on the other, the high, anticipated number of career changes in a lifetime and its corresponding demand for mobility and adaptability. Inflatable furniture is essentially camping equipment, although in the late 60's a market for inflatable furniture exploded, perhaps appealing to the desires to "drop-out" but in so doing pull the plug on the living-room set and take it along. In any case inflatable furniture already has a place in the recent history of the American home.

The basic principle of bio-gas production is applied to this ensemble of inflatable furnishings. The mattress/water bed is converted into a digester; it's added appendages allow input of organic material and outflow of processed materials. The mattress is appropriate because of its horizontal configuration but also because the additional warmth drawn from the sleeper's body helps accelerate gas production. The rest of the system, the bed and end-table, serve as storage vessels and facilitate the use of the gas at an appropriate pressure level. The pressure,

of course, depends on the weight of the person sitting on the couch, or the number of books on the end-table. Successful operation of the "Advances in Biogas" system (if this is possible) will allow the owner/operator to permanently disconnect their apartment from sewage hook-up, external gas suppliers, and possibly electricity suppliers, thereby reducing the burden placed on global energy resources. In addition the owner/operator will gain a source of high quality fertilizer for use in domestic agriculture. STORE (cheese) is a project developed in response to an accidental insecticide poisoning which took place on a Wisconsin dairy farm. The insecticide "Aldrin", is a chlorinated hydrocarbon compound, similar to DDT, both of which were banned from agricultural use in the United States in the early 1970's. It was banned because of its most attractive feature — its persistence. This meant that a single application would keep working for long periods of time and led to Aldrin's acceptance and widespread use, often as a soil insecticide. It allowed farmers to plant corn contiguously on the same land instead of rotating crops to prevent rootworm damage. This persistence, however, was allowing it to spread over time through various plant and animal food chains and cause problems wherever it began to accumulate, including humans and in this case cows. 51 of this particular farm's 84 dairy cows were contaminated when the animals ate some twenty year old insecticide left by the farm's previous owner as it began leaking through the cracks of an old storage building.

Aside from the health of his animals the most immediate concern to the farmer was the realization that the milk he was producing was contaminated and he no choice but to dump it down the milkhouse drain. The milk itself was the starting point for the Store (cheese) project. Here was a situation where the farmer was forced to "produce" what amounted to no more than a waste disposal problem. Continued milking of the cows was the first means of ridding the animals of the poison since the chemical latches itself onto fat molecules in the body of the cow, and those in the milk. A further complication was that dumping the milk risked introducing the chemical to other potentially problematic environments of the surrounding land or ground water.

A pause seemed necessary, one in which both the conditions of widespread chemical use in the recent past, as well as questions of toxicology and disposal could be considered. The preservation of the milk by producing cheese seemed an appropriate means of achieving this pause. The process of cheese-making itself was particularly fascinating as it echoed some of the bacteriological processes mentioned above, but here served as a means of concentrating and stabilizing the fat content of the milk, thereby stabilizing the toxin; food processing converted to waste management. It also introduced numerous levels of containment: Aldrin contained in the milk; milk preserved by the cheese-making; the cheese sealed in wax; then finally the whole cheese contained and observed in a modified refrigerator where it still remains waiting for a suitable mechanism of disposal to be established. It is also interesting to consider that this notion of containment, which now seems so unavoidable, is virtually antithetical to the agricultural industry's particular mandate of extensive chemical dispersion.

The modified refrigerator with the contaminated cheese was presented publicly in the small town near where the accident occurred. Its installation was coordinated with the local newspaper so that information would be available and numerous related issues could be discussed at the time of the refrigerator's appearance.

Legal Cheese is closely related to Store (cheese) but rather than using milk which exceeds governmental standards for pesticides in food, Legal Cheese is made with milk containing clearly identifiable levels of pesticide but within allowable levels, that is, less than .03 parts

per million. This cheese, according the United States government, is consumable and for this reason can be handled and exhibited in a less restrictive way.

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