

# Toilets and Night Soil

(Types, Treatment & A Bit of History)



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**Japan Association of Drainage and Environment**

**Night Soil and Sewerage Research Group**

## Preface

Night Soil and Sewerage Research Group is a substructure of Japan Association of Drainage and Environment. This Group conducts research mainly on culture and history of toilets/night soil, and has been planning lecture meetings or field visits for seven years now. In 2003, in an effort to encapsulate our activities, we wrote a book called *What do you think Toilets and Night Soil?* published by Gihoudou Publishing Co. We have also written articles for specialized field magazines to supply information on this field.

Night Soil had been used as fertilizer for farms until quite recently. A result of this practice was the affliction of a large number of people with parasites. Flush Toilets using sewerage system, which is the most popular type, community treatment plants, Johkasou (private treatment facility), had been effective in the eradication of parasite disease in a short period of time.

This booklet is intended to inform people of other countries about toilet history in Japan. At first glance, you might ask: Why should I bother reading about toilets (and other delicate matters) at all? Well, the convenient water-flushed toilets were not always available, you know. Then, your next question might be: Hmmm...what did they use in those days?

There are seven chapters in this booklet. I'm sure you will find a selection that interests you. To make the presentation more appealing and easily understood, we have carefully chosen the photos to include here. By the way, this booklet is also available in the English language.

We hope this booklet will inspire you to acquire more knowledge of whatever interesting bit of information catches your interest. And finally, we encourage you to try to improve environmental and sanitary conditions in your own town or city.

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# CHAPTER 1

## Expressions About Human Excreta in Literary Products

### 1. Introduction

Japanese usually hesitate to refer to human ‘excrement and urine’, although in a few Japanese literary products, such as essays and novels, one can find the following expressions concerning them: ‘urinating outdoors in a standing position’, ‘a chamber pot and urine bottle’, ‘collection night soil from houses by a farmer’, ‘the application of night soil’, ‘a ship carrying night soil’, ‘night soil collecting business’.

### 2. Literary Reference of Expressions

Several Japanese literary works are cited below from where the expressions mentioned above are taken. Comments on what could be inferred from pertinent portions of the works are also included, aided by some historical information.

- ‘*Urinating outdoors in a standing position*’

Even in the early days of civilization and enlightenment, just after the Meiji Restoration in the 1870s, both men and women urinated in a standing position in the field. This was probably the custom in those days.

Since ancient times, people defecated and urinated outside. After they could afford to build a toilet hut in the backyard, they still went out of the house for defecation. It was therefore common to urinate outside.

In a book of essays titled *Folk Stories in Kohtoh* by Mr. Sadanosuke Tanabe, and published in 1984 by Seishido, there is a story about father and son getting caught urinating outside, by the riverbank. The setting is in Tokyo, about the end of Meiji era, around 1910. Here is an excerpt:

A steam ship sounding pop had already disappeared. We began to walk on the bank along the Onagi River.

.....

# CHAPTER 2

## History of Night Soil Treatment in Tokyo

### 1. Introduction

Recently local municipalities tried to form a recycling-oriented society. However, during the Edo era, which was over 200 years ago, there was already an ‘ideal recycling society’, so to speak. At that time, in Japan, human waste was used in farms as fertilizer. On the other hand, people in the western countries have an aversion to night soil. The Japanese has had a special night soil culture for a long time, but over the years, chemical fertilizer was used instead of night soil because it was cheaper

Municipalities tried to find solutions. Many municipalities introduced Johkasou, a night soil ocean dumping and sewerage treatment system.



↑ [Ayase night soil treatment facility](#)

### 2. Night Soil Sanitary Treatment System

#### (1) ‘Solid and Liquid Waste Treatment Law’ and ‘Sewerage Law’ (1900)

Two laws, namely, ‘Solid and Liquid Waste Treatment Law’ and ‘Sewerage Law’, were enacted in 1900 in order to prevent epidemic and improve sanitary conditions. Under these laws citizens were obliged to collect garbage and night soil and the municipalities had to treat these wastes. In fact, at that time, night soil was still used as fertilizer by farmers.

During this time, too, sewerage system was only used for removal of rain water from

# CHAPTER 3

## Establishment and Development of Night Soil Collection System

This chapter describes an actual case of establishment and development of night soil collection system. Mr. Kihei Takasugi, a war veteran, was interviewed and what follows are intimate details of his experience of collecting night soil, which he first got to do as a prisoner of war in Okinawa with a ‘pig toilet’, and then as a farmer, an occupation he took up right after the war. Initially, the night soil collection was intended for his farm’s consumption as fertilizer because manure was in short supply, but later on he saw the potential to earn additional income from making this into a full-time business.

### 1. Night Soil Collection

#### (1) Collection by Handcart

It was not easy for farmers to get manure in those days. Fortunately, Mr. Takasugi knew a colleague during his war days who owned twenty rental houses in Tokyo. He was allowed to collect night soil from these houses; in those days, supply of night soil always runs short because it was used as fertilizer.



↑ Wooden buckets for night soil

# CHAPTER 4

## Urine and Feces Separated Toilet Developed After World War II

Many researchers have been engaged in solving toilet problems from medical and sanitary aspects. Since night soil had long been used for agriculture, the research works targeted how to kill parasites and bacteria, causing infectious intestinal diseases, in pits where they easily grew. These research works developed Taisho (1912-1926) toilets, multi-tank Ministry of Interior type toilets (later Ministry of Health type improved toilets) and Showa (1926-1989) toilets.

Ministry of Health type improved toilets were developed after some ten-year research (beginning from mid 1920s) in present Omiya City, Saitama Prefecture.

Sanitation Research Institute of Kanagawa Prefecture, with the late Mr. Takeru Kodama as Director, began as early as 1945 to make a research on the practical use of urine and feces separated improved toilet inspired by Ministry of Health type improved toilet. In 1949 Mr. Nobuo Muto, then just 23 years old, began to develop a urine-feces separated improved toilet (UFSIT). It was his first project at the institute.

Dr. Nobuo Muto has lots of brilliant academic as well as practical achievements in the field of not only night soil but also solid waste. He is retired from Kanto-Gakuin University and is currently Professor Emeritus of the university and honorable member of Japan Society of Waste Management Experts.

The following discussion is based on an interview conducted with Mr. Muto on October 14, 2003.

### 1. Introduction

Pathogens and parasites are found only in feces and not in urine. It is only logical these be handled separately. Another thing to consider is that amount of urine is ten times that of fe-

# CHAPTER 5

## Circumstances of Restrooms in the World

The following is a first person account of a Japanese traveler's experience in restrooms in foreign countries:

When you first set your feet in a strange, foreign country, you will feel anxious and excited. You cannot speak the local language, and you will use a lot of hand gestures. When you finally made yourself understood, you will experience one of the happiest times of your journey.

I began traveling abroad out of curiosity. I have already visited more than thirty countries. I found out that forms of toilets vary in countries like cultures vary in the world. I used to be perplexed by strange types of toilets during my early travels. Here are some of them.

### 1. Public Restrooms in France and the Netherlands

You will see often a portable, box type restroom, settled on the sidewalk in European cities. I found a pay restroom as the one in the photograph, installed on the corner of a park in Pau, France. I inserted two coins francs, it equaled forty yen in those days, into the slot, and then the door opened. I stepped in the box. The door closed automatically.

The inside of the room was clean, and a little toilet stool was immaculate. The bowl had no seat. I was reluctant to sit on the toilet bowl directly. You see a square hole under the mirror. When I reached my hands into the hole, water ran out automatically and I washed my hands. When the water stopped, warm air blew afterwards, and my hands were dried. The warm air had deodorant to eliminate the smell in the box. I truly admired the French attention to detail.

Then I looked for a lever or a button for flushing, but I could not find one. I thought that the



## CHAPTER 6

### The Situation of Night Soil-Derived Parasites in Developing Countries

Eating habits and manners in which night soil is handled are closely related to spreading of parasites. Parasites infection ratios were considerably high until the late 1940s in Japan. The following is from the lecture delivered by Dr. Toru Onogawa, Doctor of Veterinary Medicine and former Visiting Professor of Kyorin University, *at the thirtieth regular meeting of Japan Association of Drainage and Environment on March 2, 2004.*

#### 1. Success of Measures to Reduce Parasites Infection in Japan

Several holes were found in the excavation survey of the ruins of Fujiwara Dynasty located in Kashiwara City, Nara Prefecture. The decisive factor that the holes were the mark of toilets was that parasites ova were included in the soil near the holes. Parasites ova that were detected were those of ascaris (roundworms), whipworm, liver trematode and Yokokawa trematode. As this detection tells, human beings have been related to parasites from the ancient times.

Parasites are not common these days, but so many people were infected by parasites that Japan was called parasites kingdom for some time after World War II. Dysentery carriers were 70 to 80 thousand per year along with typhoid fever patients, and tuberculosis was also popular. Although 60% of the total population was ascaris carriers, local health centers could not take any effective measures against parasite infection because they were busy in taking measures against infectious diseases represented by dysentery.



↑ [The specimen of the roundworm](#)

In this circumstance, a parasite prevention council was established in the late 1949 in pre-

## CHAPTER 7

### Night Soil Treatment in Developing Countries

#### 1. Sanitary Condition in the World

Forty percent of the people in the world do not use toilets, according to the Environmental and Development Summit in Johannesburg in 2002. From the view point of sanitation, it is a serious problem worldwide. However, Japan has a long history of toilet knowledge and special toilet culture that is quite different from other countries.

Japan could help developing countries in this aspect. For example, Japan started using night soil as fertilizer a thousand years ago. As a result, Japan has accumulated much useful knowledge concerning night soil treatment.



↑ A public toilet, now under construction in Dhaka City

#### 2. Types of Affordable Toilet Systems in Developing Countries

Seventy percent of people in India, 30% in Indonesia and probably a large percentage in other developing countries do not use toilets as part of their daily living. Moreover, collected night soil is discharged into rivers directly, that sometimes these rivers are called 'septic river'. The river water is murky black and smell of urine and feces.

##### (1) Sewerage Treatment System

Introducing a sewerage treatment system is difficult because the construction is costly and takes long to complete. And many developing countries can not wait; they have to solve this night soil treatment problem urgently.

##### (2) Johkasou(Japanese individual treatment Toilet)

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