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## Toilet Design Interest Revived

**T**HIS year's drouth has revived interest in new designs for flush toilets that require less water.

This is logical, because the average American family uses an estimated 35,200 gallons of water annually for flushing. This is calculated to be 45 per cent of all water they use.

However, not all discussions of the subject are along practical lines. For example, those who talk about installing dual water systems, one for drinking or cooking water and one for water for other purposes, obviously have not checked prices for piping, ditch digging or plumbing.

A Popular Science magazine writer, Evan Powell, recently reported on personal research with water-saving gadgets. He found a toilet that uses only two quarts of water per flush, 10 per cent of what other types use, but it costs \$600.

He tried bricks and bottles in flush tanks to cut water usage, but said commercially made "dams" work better.

Two years ago, the Smithsonian magazine published a comprehensive review of the flush toilet. It said cities in the Indus Valley had indoor bathrooms flushed with water between 2500 and 1500 B.C., showing how old the problem is.

The Smithsonian reported that Rev. Henry Moule in 1860 devised a toilet that consisted of a wooden seat over a bucket and a hopper filled with dry earth, charcoal or ashes. The user pulled a handle to release a layer of dirt.

Some years ago, a group at McGill University's School of Architecture in Montreal catalogued 52 toilet-flushing systems from 11 countries around the world.

One design from Norway uses no water or chemicals, but it requires electricity for the attached freezer, which solidifies wastes in biodegradable bags for composting. The group noted that the refrigerated air also chills the seat.

A Swedish designer used plastic to collect waste in a tube to form a link in a long "sausage," which was

stored until a convenient time to dispose of it arose.

A Japanese model has a standard wash basin on top of a standard toilet, using the same water for both. This is said to save 25 per cent on water and 50 per cent on space.

A Swedish art teacher designed a composting toilet called the Clivus Multrum. Some have been sold in the United States. It is a fiberglass container about 9 feet long, 3 feet wide and 5 feet high.

The top compartment is for human waste, the middle one is for vegetable scraps and organic refuse and the bottom bin holds the compost. A vent exhausts odors through the roof and a conveyor moves the compost outside near the garden.

Installation of new designs may be limited largely to new construction. Not many people have money so plentiful they can flush \$100 bills down the toilet, as happened at a Pennsylvania filling station two weeks ago.