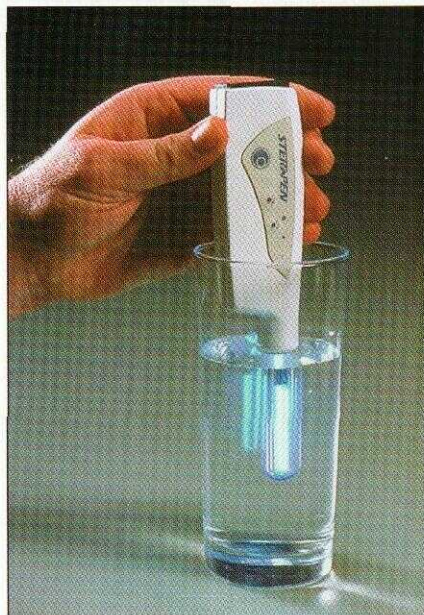


## Purifying Water by the Glassful

**T**HE captain of the small Egyptian Felucca sailing vessel (Photo 1) reached over the side into the Nile River to draw himself a cup of drinking water. This glass of water could safely refresh his thirst, but if tourists drank from the same river they would probably get, at the very least, an intestinal vims. To avoid what many call King Tut's or Montezuma's revenge, tourists traveling to many parts of the world drink only bottled water.

A well-tested technology that has been used to purify water for over 50 years has just been designed into a small, carry-along tool that makes it possible for travelers to purify their drinking water one glass at a time. Steri-Pen is a pocket-sized water-disinfecting device manufactured



**Photo 2—Steri-Pen**  
Photo courtesy of Hydro-Photon

by Hydro-Photon Inc. of Blue Hill, ME. It uses ultraviolet light to kill all the living microorganisms in a glass of water (Photo 2). To use the pen, immerse it in a glass of water, press the start switch, and stir for 30 seconds. The pen will purify about 34 glasses of water on a metal hydride rechargeable battery, or about 30 glasses of water on a standard 9 V battery. The Steri-Pen has all the necessary bells and whistles to inform you that it is functioning properly. Its childproof code switch prevents young children from turning it ON, and a liquid sensor protects adults with juvenile personalities. Once immersed, the ultraviolet light from the pen is contained within the glass of water.

Today, water treatment plants and factories that produce bottled water use large ultraviolet germicidal lamps. Ultraviolet germicidal lamps are also used in hospital operating rooms and to prevent pathogens from escaping bio-hazardous laboratories.

The 200 to 265 nanometer wavelengths of the magnetic spectrum are referred to as UV-C light. This light destroys the DNA of microorganisms exposed to it. UV-C light will destroy the DNA of algae, bacteria, fungi, protozoa, and even viruses. In the same way that people have different tolerances to the sun's ultraviolet skin-

burning rays (UV light), each microorganism has a different tolerance to the rays from the Steri-Pen or any other ultraviolet source. It is therefore the ultraviolet light in combination with a sufficient exposure time that guarantees the full destruction of the microorganisms. To see the specific dose required to kill a long list of microorganisms, visit [www.hydro-photon.com/hydropgs/Uvlight.html](http://www.hydro-photon.com/hydropgs/Uvlight.html) on the web. The 30-second exposure by the Steri-Pen provides more than enough exposure to kill everything in a 16-oz. glass of water.

By the time you read this article, the Steri-Pen should have completed final testing, leaving just one stumbling block for NSF certification. NSF Standard 55 requires a source of piped flowing water through a UV device. This unique UV-C pen needs a revision of the standard to allow for its one-glass-at-a-time approach. Miles Maiden, president of Hydro-Photon, has indicated that by the time *TechDirections* subscribers read this column, Steri-Pen will be in full production and the NSF revision of Standard 55 will be, underway.

People will soon wonder why water glasses used by tourists have this purple, 30-second glow. **TD**



**Photo 1—A Felucca sailing on the Nile**  
Photo courtesy of Alan J. Pierce

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### Recalling the Facts

1. Why is it considered dangerous for tourists to drink regular water in third world countries?

2. How does the Steri-Pen purify water?

3. Why did the manufacturer of this pen place a childproof start switch on the Steri-Pen?

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