

# Digitals' accuracy depends on sand

Digital watches are among the most sophisticated of consumer products but just a few grains of sand are responsible for their accuracy, explains Lawrence Guioletto, professor of electrical engineering and systems science at Michigan State University.

**Rite**  
Featuring America's Finest Carpet Mills... Largest Selection in the Area. Choose from over 1000 World Wide Bigelow or Cabot-Crafts.  
8497 W. Grand River  
Brighton Mall  
1-227-1114

**FAIRLANE TOWN CENTER**  
2000 N. Zeeb Road  
Livonia, MI 48150  
(313) 424-1234

Digital watches depend on silicon, the stuff of beach sand, for the quartz crystals and miniature transistors that keep the new time pieces running with an accuracy as fine as five to 10 seconds per month. The solid state digital watch, Guioletto says, is basically an American invention, with much of the technology and development capital coming from our computer industry.

Other countries simply have not been able to keep pace with American solid state and integrated circuit expertise. Guioletto says.

WITH DIGITAL WATCH prices falling from about \$125 to \$30 in 15 months, there's not much incentive for new manufacturers to get into production. Horology, the science of time and time pieces, took a giant step about 10 years ago when engineers built small quartz crystals that could vibrate about 32,000 times per second.

as many as 2,000 transistors simply counts the vibrations. For each 32,000 vibrations, the circuit sends a signal to a display device that records the time.

BUT DIGITAL watches have their problems. They are bulky because of the electric battery required to keep the crystal vibrating and the display device visible.

THE LIGHT-EMITTING diode (LED) display is even easier to see in the dark, but it drains a relatively large amount of current from the battery. LED watch circuits are devastating to the battery.

are full you'll have to use your time or go without the correct time.

WHAT'S IN store for the watchwearer of the future?

The quartz crystal integrated circuit digital watch is here to stay. Guioletto says, and the problems with digital watches may be solved in some novel ways.

In any case, I believe the State of Michigan has every reason to be proud of our medical school. Gronvall concluded.

**NEW HOME HEALTH CARE SERVICE**  
If someone you care about needs assistance at home at prices that are reasonable. Call us for COMPANIONS, HELPERS, NURSES, AIDES, AND LICENSED NURSES.  
**HEALTH CARE ONE, INC.**  
WAYNE • SOUTHWICK • TROY  
326-0700 569-2585 288-3340

**VILLAGE FASHION MALL "OUTDOOR" ART FAIR**  
Morrison at 7 Mile  
LIVONIA  
JULY 17-18  
SAT. 10-8:00 SUN. 12-5  
SEE THE WORKS OF OVER 50 ARTISTS • PHOTOGRAPHERS • CRAFTSMEN AND THE VILLAGE FASHION MALL MERCHANTS WELCOME YOU TO STOP AND BROWSE

## U-M med school among top 10

The University of Michigan Medical School has been listed among the top 10 in the nation by Medical Economics.

charts those ranking highest in state licensing exams, and those producing the greatest number of board certified specialists.

THE U-M Medical School placed among the top 10 in three of these categories, and thus won a position in the "composite best ten." (Actually a top eleven, since there was a three-way tie for ninth place.)

Adding up the ratings in each of the publication's categories to determine the "best," Medical Economics revealed that its list differs considerably from the 1974 ratings of American professional schools published in *U.S. News & World Report*.

THE COMPOSITE best 10 medical schools in the country, according to the latest Medical Economics figures, include Harvard, University of Chicago, Columbia, Johns Hopkins, New York University, University of Pennsylvania, Cornell, Washington University, Albert Einstein University, the U-M, and the State University of New York at Brooklyn.

Naturally we are pleased, said John A. Gronvall, M.D., dean of the U-M Medical School. "But it would appear that one has to be as wary of favorable polls as he might be disappointed with unfavorable ones," he added.

### Felician fair

Tickets are still available to the one-day fair sponsored by the Felician Sisters of Livonia from noon to 8 p.m. July 18 on the campus of Ladywood High School, Schoolcraft and Newburgh.

The public is invited to the free event whose proceeds will go toward the Felician retirement fund.

**Why Pay More! Why Pay More!**  
**MEIJER** thrifty acres  
**PATIO STONES**  
5 for 88¢  
Our Reg. 29¢  
GARDEN CENTER  
1 1/4 x 7 1/4 x 15 1/4" size. Ideal for pathways, rock gardens, around swimming pools, etc.  
PRICES GOOD THRU SAT. JULY 17, 1976  
MEIJER THRIFTY ACRES 45001 FORD RD. AT CANTON CENTER RD.

## DO-IT-YOURSELF AND SAVE at Salem Lumber

**GENUINE REDWOOD FENCE**  
SECTIONS ARE PREASSEMBLED  
5' x 8' SECTION \$24.88  
6' x 8' SECTION \$28.88  
EXTRA FENCE SLATS \$1.49 EA.  
POST EXTRA - CASH & CARRY  
1 FT. / 8 FT. TOPPERS \$7.88 EACH

**The Regency**  
STEEL SHED  
NOW IN COLONIAL OLIVE AND FOREST GREEN FOR A NEW, NATURAL LOOK. FEATURES DECORATIVE DOOR ARCH AND BLACK OCTAGONAL HANDLES, LANTERNS AND HORSE AND SURREY GABRIEL PLAQUE.  
10' x 7' MODEL \$118.88  
10' x 10' MODEL \$144.88  
INCLUDES DELIVERY TO LOCAL AREA

**ROUGH LANDSCAPE TIMBERS**  
4x6-8' HARDWOOD  
\$3.88 EACH  
CREOSOTED... \$4.88 EACH  
CASH & CARRY

**6 FT. PICNIC TABLE**  
MODEL ON DISPLAY  
ALL YOU NEED IS A \$15.88  
HAMMER & SAW, NAILS AND PLANS INCLUDED

**Summer Vacation Goods Close-Out**  
\$6.69  
Kids' Slumber Bags in a variety of patterns.  
**Coleman Large 2 Burner Stove**  
New \$24.88  
MODEL 4153  
Large 2 Burner  
Also 3 burner stoves, Coleman Coolers, Heaters and Lanterns at similar savings.

**SALEM LUMBER CENTER**  
Home of Old Fashioned Service  
30650 PLYMOUTH ROAD  
Livonia, MI 48150  
(313) 424-1234

**Official Boise Cascade Outlet**  
**ALL WALLPAPER 20% off**  
All patterns and styles including special orders. All freight paid.  
Save over \$350 on gallon of Mac-O-Lac Paints  
Formula 99 Latex Regular \$12.99 Now \$8.98  
Formula 99 Latex Semi-Gloss Regular \$12.99 Now \$8.98  
**Adler-Kay Factory Outlets**  
MAIN WAREHOUSE 8234 TELEGRAPH  
Livonia, MI 48150  
33606 PLYMOUTH  
at Farmington Rd., Livonia, 325-7711  
**Tub Enclosure Doors**  
Nationally famous TUB MASTER Enclosures  
FREE SHIPPING  
\$51.95  
60" By-Press Style \$71.95  
**Kitchen Carpeting**  
**All LEVOLOR Blinds**  
Aluminum Slat Shades and Wood Shades including special orders. All freight paid.  
10% off  
**Saturday Only SAVINGS SPECIAL**  
**JULY 17 ONLY**  
**Adler-Kay Walnut Knottingwood Cabinets DISCOUNTED at 50% PLUS 10%**