By Paul Schindler

It's already at the Smithsonian in Washington, D.C., but the big draw at the Boston Museum of Science is M.I.T.'s new exhibit called "Muse" - a combination of electronics and musical instruments.

"It's the Muse - without question the first commercial computer designed specifically for the consumer market. Its creation represents a breakthrough in the outgrowth of Minsky's and Fredkin's work on artificial intelligence. The pair wanted to test "the highest form of technology to use, just for fun." In addition, they stated, "The technology inside this little triangular box is the best available. The Muse offers one the capability of being musically creative while not necessarily being a trained musician."

Fredkin described the invention process a bit differently to his class in "Understanding and Solving Problems" (formerly one of the first courses in the IC for- mat) to create a device which, under guidance, would compose and perform music. This way, the student gets a result he can actually hear and control. It fulfills the creative desire, and gives a more tangible goal to early work with digital logic. For at least the first term, 6,804 students, the idea seemed to be a roaring success. Fredkin took the class through the general problem solving until early the end of the term. Then he introduced the class to digital logic, in conjunction with a digital logic board, which enabled all the members of the class to build a primitive Muse. Fredkin was heartened by the accelerated learning which took place.

The basic idea of the Muse is fairly simple. Two clocks are used to create on-off (square wave) pulses. This is the same method used generally by the Moog synthesizer, which results in the rapidly changing frequencies which the Muse creates. These pulses are then divided into musical zones (on the basis of certain fairly exact mathematical relationships), using a binary counter as the guide.

The counter button serves as a kind of coder, such that when a "one" is counted, the division circuits are set to play a "C," "two" equals "D" and "three" equals "E," and so on. The musical notes can now be applied by the coder is determined by a longer counter circuit, controlled by the operator switches. A second clock is used to control the rhythm. Add volume control and a pitch control (the latter varies the main clock frequency), and you have a Muse. But it's no use trying to build your own: separate purchase of the IC's and counters would cost much more than buying an already-assembled Muse.

The current Muse exhibit at the Museum is not visitor-operable. Apparently there are fears of damage to the device. Right now, it is playing a piece that will not repeat itself for years to come. The exhibit also features a Muse accessory, the "Light Show," which, unlike many music-to-light accessories, is actually related to the notes being played at the time by the Muse. It makes a rather spectacular display.

In addition to the exhibit, the Muse has now been appended to a Museum program of educational demonstrations for young students, on the topic of music. The Muse wraps up the program, to the delight of many grade-school youngsters in attendance. Under Director Rod Mansfield, the Muse has now been appended to the exhibit and conveys the fact that Fredkin is one of the few full professors at the Institute he received his appointment this last June) who does not hold any degree.

The actual product design of the Muse, as well as the design of the corporate symbol for Triadex, fell to Joseph Selame and W.Grant Hodsdon of Selame Design. The corporate symbol, a graphic interpretation of a robot's head, is incorporated into the exhibit and conveys the inter-relationship between human reasoning and the computer process.

Fredkin is Chairman and Chief Scientist of the XYZ Corporation, while Minsky is a director of Triadex. (XYZ is the parent company of Triadex). Although Fredkin has been in business ventures before, the invention of the Muse was not a case of businessman and scientist co-operating. The pair are both standouts in the field of artificial intelligence. Of special note is the fact that Fredkin is one of the few full professors at the Institute (he received his appointment this last June) who does not hold any degree.

Although the actual product design of the Muse, as well as the design of the corporate symbol for Triadex, fell to Joseph Selame and W.Grant Hodsdon of Selame Design. The corporate symbol, a graphic interpretation of a robot's head, is incorporated into the exhibit and conveys the inter-relationship between human reasoning and the computer process.

---

**Hilton Hotels**:

**Student Discount**

We give students a break, with special reduced rates from Boston to Honolulu. (Faculty and graduate school students get a discount, too.)

Let us send you a pamphlet listing the Hilton Hotels and Inns that offer special student rates. Also a Hilton Student Identification Card to use when staying at one of our properties.

Mail this coupon to Hilton Hotels Co.

**Travel Department, National Sales Division, 9880 Wilshire Blvd., Beverly Hills, California 90210.**

We want to make it easy for you to come visit the Hiltons.

Name:

Address:

City State Zip:

College Class of:

---

**Consider the source**

The first malt liquor good enough to be called BUDWEISER.

---

**M.I.T. CHORAL SOCIETY**

Klaus Liepmann, Director

Henry Gibbs, Asst. Director

CARRISIMI BILLINGS

MOZART BRAHMS

**Tickets**

Sunday, May 2nd 8:30 pm

Kreger Auditorium

---

**STUDY SOUNDS**

**IMPROVE GRADES**

The new study aid to increase your concentration and improve your grades. Over 100 different tunes can be used with your tape recorder.

**ELECTRONICALLY PRODUCED SOUNDS**

At least one eight-year-old was asked to write a review for each of the products. The review was then sent to the company for their approval.

---

**PREGNANT? Need Help?**

For assistance in obtaining a legal interruption immediately in New York City at minimal cost

**CHICAGO (312) 922-9777**

**PHILA. (215) 878-5800**

**MIAMI (305) 779-7941**

**NEW YORK (212) 582-4740**

---

**Expedition Leaders**


---

**Concerts**

M.I.T. Choral Society

Klaus Liepmann, Director

**Boston Symphony Orchestra**

Kurt Masur: Conductor

Carissimi: Canticum Canticorum

Carissimi: Jephte Oratorio

Handel: Messiah

**Tickets**

Krege Auditorium.