

# ARCHITECTURE MACHINATIONS

A weekly newsletter of the Architecture Machine Group, Department of Architecture, M.I.T., Room 9-518, Trilla Ramage, editor.

Vol. III., No. 14

April 12, 1977

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## THIS WEEK

Tuesday, April 12,	@5:00-6:30pm	Benjamin Rockman of Adage will be here to discuss Adage 3D hardware in relation to MBY.
Thursday, April 14,	all day	Andy meets with Dave Evans at E&S, Salt Lake. Same discussion as above.
Friday, April 15,	@10:00-1:00pm	MBY final review.
Monday, April 18	@6:00-7:30pm	SID Open House (see inside for thin explanation).

## AND BEYOND

Wednesday, April 20,	@5:00pm on	Elloit Schlam and Robert Dunn visit, ARO related.
Friday, April 22,	@11:00am-noon	Brown Boveri Company (the German branch) visit to see our NSF graphical input developments.
Wednesday, April 27,	@11:00am-noon	Siemens visits. More "Office 1990".
Saturday, May 7	all day	MIT's Open House for employees.

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## SID SYMPOSIUM by Nicholas Negroponte.

I have been asked by several people what our co-sponsorship of the SID Symposium really means. I don't actually know. However, I do know that we are having an open-house on Monday, April 18 6:00-7:00pm. Chris Herot has been asked to be the Master of Ceremonies. ABY will miss Guy, but have Peter Clay as a stand-in.

The week as a whole will bring many people to town, including Peter Brody (Westinghouse), Bill Good (GE), and Elliot Schlam (Monmouth). Also, the exhibition should be of great interest to our hardware department.

I have asked Vernon Fowler, Chairman of the Symposium, to provide a small number of generalized entry tickets which we can circulate amongst ourselves. We should have every session covered. Please read over Machinations (Vol. III., No. 12) and give Margaret the names of those sessions you would like to attend. At the end of this week, we will see how many sessions are lacking in attendance and then do some coaxing. It would be nice to have next week's Machinations include a one or two paragraph review of each paper.

## RAMTEK NEWS by Andy Lippman.

A new monitor is arriving from Ramtek! We are trading in the 19" Mitsubishi for the 13" version. This new monitor is better suited to our application, hopefully more reliable, and presents a better image. Expect it sometime this week.

The micro-assembler for the 8080 is almost up. It should be ready this week also.

The vidicon interface is undergoing some quality improvements. In our standard style, this means completely breaking it, then fixing it again, somewhat better than before. If you want to use it, please call. We are working on making it available for all applications. The image disk transfer program is in the works, and should be ready soon. As it stands now, it will store a 512 by 480 image with some grey values. I'm not sure how many yet. In the background is a program to digitize the image ten times faster. This involves a hardware mod to the Ramtek which is now possible with the MM80 here to debug it. Also, the copy lens has arrived. When the mounting adapter comes, in two weeks or so, we will be able to copy all the way down to one-to-one.

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## MICRO-DEBUGGING FACILITY by Andy Lippman.

Through the good graces of the Ramtek Corporation, we now have an MM80 in-circuit emulator for 8080 systems. It arrived last Tuesday. This device is an extremely well designed and flexible debugging and simulation system for 8080 based software and hardware.

It can operate in three modes. As a stand-alone system, it includes an editor, a one-pass assembler, and a debug/monitor program with a dis-assembler. There is a serial port that supports a variety of terminals. We have used it with the Carousel. To use it in-circuit, there is a plug that interfaces to the target system by plugging into the socket normally occupied by the 8080. Thus this box can be used to emulate all of the functions of the microprocessor in that system, and can single step through its operation (emulation), or run it in real time with some debug features enabled.

The unit physically consists of a box, about the same size as a Summagraphics tablet controller, and can be carted around to work on any system that includes an 8080 for its controller.

The software is reasonably comprehensive and allows breakpointing, tracing, copying memory, and even memory testing. There is a self test feature (apparently a feature of all Ramtek hardware) that tests the unit's internal functions every time the system is reset or powered on. There is also provision for adding a PROM programmer.

Needless to say, this is the most desirable microprocessor debugging system available, and will probably be desired by all of the hackers and passers-by that happen into the machine room. So, some rules of operation will be enforced. Bear in mind that Ramtek gave this device to us to make it possible for us to implement certain functions on the Ramtek 9300 that we have. Therefore, that is its highest priority use. Here are the rest of the rules:

- 1) It must be borrowed from me by pre-arrangement, and must be returned to my office when it is not being used. It is as expensive and portable as an oscilloscope, and that is the order of care with which one must use it.
- 2) Prospective users must be trained and checked out in advance.
- 3) It should be used for some real purpose.

As time goes on, here is what will happen to the MM80. First, we will create a PASLA driver (a tortuous task) so that we can store 8080 source and object files on the fiel system and transmit them through the MM80 to the target system. We will also be able to use the debugging system from an Imlac, or any magic console. There is also an 8080 (fully compatible) two-pass assembler in development that should be up