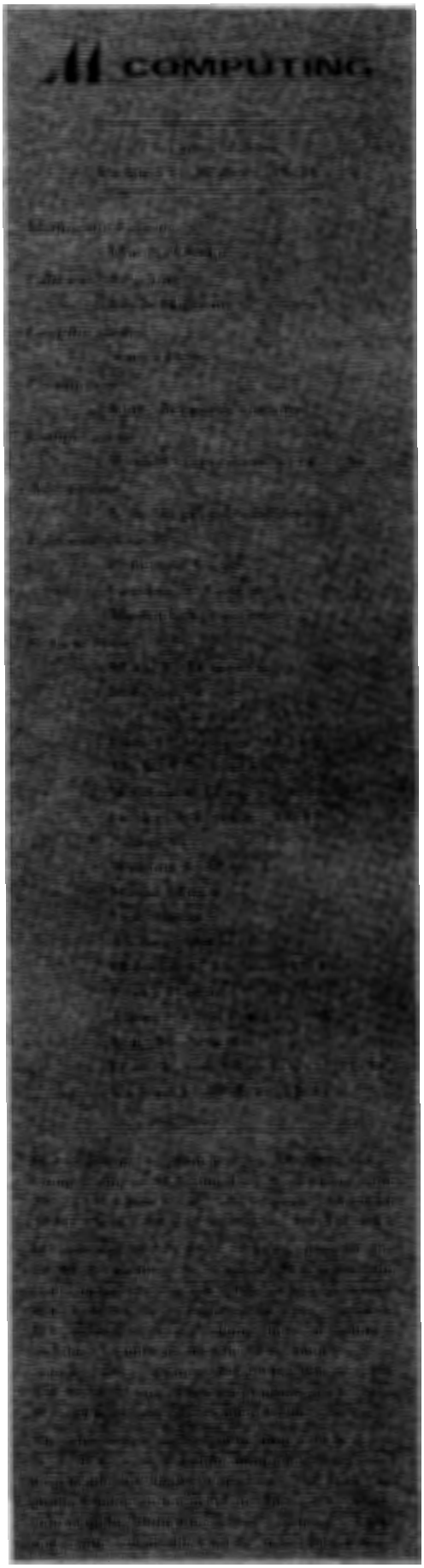

FROM THE EDITOR

M and Database Futures

by Richard F. Walters

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This issue is about database research and management. Although the topic was selected a year ago, it seems even more appropriate now. We're moving forward with a new standard for ANSI/ISO approval, knowing that the proposed revisions directly address factors that are critical to M's role in the database world of the future.

In the spring, I decided that we really needed a guest editorial on the subject of where databases are going in the future, written by an acknowledged expert in the field. I telephoned several people who seemed good candidates, but each declined because of full schedules. Why not reprint their work, which some know as the Lagunita position paper, they suggested? The paper stemmed from a workshop by the National Science Foundation in 1990. When I looked at the paper, I realized that it would indeed be hard to improve upon that document as a thought-provoking commentary on where database research is heading.

We decided to accept their advice, and that report ("Database Systems: Achievements and Opportunities") appears in this issue of *M Computing*. I cannot recommend it too highly. If we accept some of the premises put forth in that speculative forecast of the future of database research, it's useful to reflect on the role that M might play in the world the editors of the article envision.

From my perspective, we have much to be optimistic about. M has demonstrated its capability to provide relational database support without the restriction of a flat file-only database structure. M now offers transaction processing. M offers effective, efficient distributed processing. M can be interfaced effectively with other database systems.

Several articles in this issue describe features that are indeed major achievements called for by the participants at the National Science Foundation workshop. Added to these achievements are other factors that bode well for M's possible future role.

M is definitely ahead of the competition in terms of internationalization. It has many of the components necessary for dealing with objects, and the few remaining requirements for reasonably complete object-oriented programming and database support (such as encapsulation and messaging) are being actively discussed in the MUMPS Development Committee (MDC).

M is an acknowledged leader (one of several) in the support of expert systems. Finally, the basic structure of M, which Tom Munnecke—a past vice chair of MTA, and an *M Computing* Review Board member—often compares to the evolu-

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tion of sailplanes, has retained an overall elegant simplicity that can and should remain a major design constraint as we look to the future. (A number of people, looking at short-term MDC topics and actions, fear that this design guideline may be getting somewhat muddied in recent years. Whatever the case, thoughtful application of this criterion may be an important filter for the continued evolution of M.)

M is far more than a database language, and that is definitely one of its strengths. On the other hand, M has more database support elements than any other high-level language, and it is therefore uniquely poised to play a key role in the futures of database evolution.

As you read the "white paper," I respectfully suggest that you resist the temptation to become complacent with the knowledge that in many ways M has solved some of the problems set forth as research fields for future database systems. Instead, consider the exciting new ideas—manipulation of nontextual data, browsing in multimedia, improved interface with the outside world—and as you consider them, reflect on the potential commonality offered by generalizing solutions to seemingly unrelated problems.

To cite one possible example, think what areas might be significantly facilitated if we had the ability to perform bit operations on data elements (embedded word processing, graphic analysis, bitmap and/or matches of query requests, to mention just a few). Is there a way that this concept can join the elegant simplicity of M without compromising its inherent structure? We have done pretty well in this respect: Structured system variables have shown themselves remarkably versatile in handling not only system-related concepts but also internationalization, and the domain concept of distributed data in heterogeneous M systems can, with minimal extension, be applied to other system options including character-set profiles.

There is a saying that if you're hip-deep in alligators, it's tough to remember that your main task is to drain the swamp. No one claims that draining the swamp is easy. But sometimes it may help to escape the alligators for a few minutes by climbing a tall tree to get a look, not only at our own swamp, but at the ground around us which, if we do our job right, can be integrated into our new, swamp-free territory. I can't claim to know answers, but I realize that we have an awesome responsibility to shape our own future—unlike the weather, we can indeed do something about it. And, much of what we have done in the recent past constitutes an effective series of small steps in the right direction.

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These comments may sound a little philosophical. They are. With sadness, I can no longer be directly involved in MDC's deliberations—the demands exceed my time available, and the schedule conflicts impossibly with my academic responsibilities. But, as I step back, I recognize that it is an activity that I have been truly proud to have participated in. I hope, even though I am not wading in the swamp, to be able to add a small voice to the cheering section (that is, the entire M community) watching the swamp drainers from the shore. Thanks for your work, MDC, and please try to listen to the landlubbers now and then! M

Dr. Walters was active in MDC for many years, and is the executive editor of *M Computing*. He welcomes your comments. Please write to him in care of *M Computing*.

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