TODS—The First Three Years (1976–1978)

DAVID K. HSIAO, Editor-in-Chief, TODS
The Ohio State University

CONTENTS

Preface

1. Introduction
2. Publication History and Practice
3. The Relationship of TODS with Database Conferences and SIGs
4. A Note on the Prior Publication Policy
5. The Aim of TODS

Appendixes

- A. The Proposal for a New Journal in Database Systems, As Submitted to the ACM Council on January 28, 1975
- B. A Memo of June 26, 1975, Indicating the Approval of the Proposed New Journal (TODS)
- C. A Memo by the Northeast Regional Representative to ACM Council Dated May 2, 1975

Acknowledgments

PREFACE

This report has been circulated among members of the Editorial Committee, the Publications Board, and the ACM Council. It was prepared at the suggestion of the Publications Board and the Editorial Committee.

1. INTRODUCTION

This is the first review of TODS in terms of its aim, scope, and practice by its editors. An appropriate way to begin this review is, perhaps, to restate the “Aim and Scope” of TODS as it was published in the very first issue in March 1976:

The aim of *ACM Transactions on Database Systems* (TODS) is to serve as a focal point for the integrated dissemination of database research and development results in such areas as storage and processor hardware, system software, applications, information science, information analysis, and file management.

TODS intends to publish high-quality papers on all aspects of computer database systems. The scope of TODS emphasizes data structures; storage organization; data collection and dissemination; search and retrieval strategies; update strategies; access control techniques; data integrity; security and protection; design and implementation of database software; database related languages including data description languages, query languages, and procedural and nonprocedural data

Permission to copy without fee all or part of this material is granted provided that the copies are not made or distributed for direct commercial advantage, the ACM copyright notice and the title of the publication and its date appear, and notice is given that copying is by permission of the Association for Computing Machinery. To copy otherwise, or to republish, requires a fee and/or specific permission.

Author's address: Department of Computer and Information Science, The Ohio State University, Columbus, OH 43210.

© 1980 ACM 0362-5915/80/1200-0385 \$00.75

manipulation languages; language processing; analysis and classification of data; database utilities; data translation techniques; distributed database problems and techniques; database recovery and restart; database restructuring; adaptive data structures; concurrent access techniques; database computer hardware architecture; performance and evaluation; intelligent front ends; and related subjects such as privacy and economic issues.

High-quality papers from workshops, symposia, and conferences may be recommended to TODS upon prior arrangement with the Editor-in-Chief. The recommended papers will be refereed, and accepted papers cannot be published elsewhere.

Also, from this first issue, we quote from the "Contributions to ACM Transactions on Database Systems":

Papers submitted for *ACM Transactions on Database Systems* (TODS) are judged primarily on originality and relevance. The scope of TODS is given in the March, 1976, issue.

Note that these statements were also included in the original proposal to the ACM Council for the establishment of TODS. (See Appendix A for the proposal as submitted to the ACM Council on January 28, 1975, by John Gosden, then the Chairman of the Publications Board.)

In the following sections we address ourselves to the question of whether TODS has met the goals and abided by the procedures implied by the two quotations given above. Specifically, we review our publication history and practice in Section 2. Figures on the number of papers we have received and rejected or accepted are given. Papers are also categorized by their subject matter and type, that is, theoretical, application-oriented, etc. These data show that TODS has established high standards for the papers it accepts in terms of quality, originality, and relevance, and that the scope of subject matter covered by TODS is consistent with the statement of our "Aim and Scope," including much of what is considered to be information science. In Section 3 we discuss our relationship with various conferences and SIGs. Questions have been raised as to what TODS policy is on prior publication. Our policy in this area is discussed in Section 4. Finally, we conclude our review in Section 5.

This review also includes, as appendixes, the 1975 proposal for the establishment of TODS prepared by R. Stockton Gaines and David K. Hsiao and submitted by John Gosden; the subsequent approval of the proposal as noted in a memo of June 26, 1975; a memo on the definition of information science by an ACM Council member; and finally, a list of all papers submitted to TODS and their current status. [This list is sensitive and is not included herein for publication.]

2. PUBLICATION HISTORY AND PRACTICE

On the average, TODS has published five articles per issue. In mid-1978, however, the page count of TODS increased from 400 to 500 annually, and the average number of articles increased to six.

To date, TODS has been asked to consider 328 papers for publication. Of these, 37 were recommended by conferences (see Section 3) and 291 were contributed. Of the 237 contributed papers that have completed the refereeing/revision cycle (54 are still being processed), only 71 papers have been accepted. In other words, two contributed papers out of seven have been accepted for publication. We feel

that this rather low acceptance rate is indicative of the high standards that TODS adheres to in judging the quality and relevance of papers.

In refereeing papers, TODS follows ACM procedures. In particular, every paper is examined by three referees. In the case of mixed referee reports, the editor quite often solicits the opinion of an additional referee. Otherwise, the editor serves as an arbitrator and makes the appropriate decisions. Arbitrations are based not only on the quality, but also on the relevance, of the paper. For example, since TODS does not publish tutorials and surveys, three papers were declined and referred to *Computing Surveys*. In addition, TODS referred one paper to *Communications of the ACM* (CACM), five to *Journal of the ACM* (JACM), and three to *IEEE Transactions on Software Engineering* (TOSE). In the opinion of the editors, these papers were more relevant to these other journals.

The papers submitted to TODS may be categorized into five types, ranging from theory to application (see Table I). The fourteen areas listed in the table coincide closely with the areas of emphasis in the “Aim and Scope” published in the first issue of TODS. Although the scope of the publication has been broad and consistent with its aims, the distribution of papers received and published is somewhat of a surprise to the editors. Furthermore, the ratios between papers submitted and papers accepted in particular areas are not as one might expect, with this value varying considerably from one area to another.

For a transactions on database systems, TODS received a surprisingly large number of theory papers (see column I of the table). By theory papers, we mean those dealing mostly with theorems and proofs. The subject most often dealt with by theory papers is that of data structures, in particular, the study of functional and multivalued dependencies of data in a relational model. The acceptance rate for theory papers is above average due to their above average quality. This is perhaps due to the fact that these papers are mathematical in nature. The rigor and discipline of mathematics rubs off on database theorems and proofs.

We note in passing, that TODS welcomes the move by JACM into the database area. Until now, the only avenue for, say, database theory papers has been TODS. Some of the papers we have received in this area, however, have dealt only peripherally with database systems. For example, one paper showed that some notions and theorems in database theory could be reformulated and proved as theorems in the propositional calculus. In view of the large number of contributions in the theory area, we would be happy to refer papers to JACM and, in fact, have been doing so since 1976, long before the new area was established by JACM. The difficulty is that TODS will not refer a paper without the author's consent. So far, most authors simply refuse to consent to referrals. TODS will also continue to solicit and publish high-quality papers dealing with information retrieval theory and application.

The largest number of submittals are on methodology (see column II of the table), where methods, algorithms, and models are proposed and analyzed. Although the large number of submittals is not a surprise to the editors, the high rate of rejection is a disappointment. Evidently, good methods, effective algorithms, and new models are not easy to come by.

The category of design and analysis (see column III) consists of papers focusing

Table I. Submitted Papers and Their Status
(Number of papers submitted/number of papers in progress/number of papers accepted.)

Areas of specialty	I. Theory	II. Methodology	III. Design and analysis	IV. Implementation and experimental issues	V. Applications	Totals
1. Data structures	45/5/12	35/3/12	7/2/1	3/1/0	4/0/3	94/11/28
2. Data languages and language processing	4/3/0	16/1/4	12/3/2	1/1/0		33/8/6
3. Security and access control	11/0/8	5/1/3	9/3/3			25/4/14
4. Storage organization	6/1/4	16/4/5	9/3/2	1/0/0		32/8/11
5. Software architecture	2/2/0	9/3/0	9/1/1	5/2/0	3/1/1	28/9/2
6. Collection, classification, and analysis	2/0/2	13/2/3	3/0/0	2/1/1	2/0/0	22/3/6
7. Integrity and concurrency	3/0/0	9/0/4	4/1/0	2/0/2		18/1/6
8. Search, retrieval, and update strategies	4/1/2	12/0/4	4/1/1	2/0/2		22/2/9
9. Distributed databases		9/3/3	5/2/0			14/5/3
10. Hardware architecture		2/0/0	9/0/6	1/0/1		12/0/7
11. Restructuring and translation		8/0/3	1/0/1	1/0/0		10/0/4
12. Performance evaluation		3/0/0		5/1/4	1/0/0	9/1/4
13. Intelligent interfaces and human factors		1/0/1	4/1/1		1/0/0	6/1/2
14. Recovery and restart		2/0/1	1/1/0			3/1/1
Totals	77/12/28	140/17/43	77/18/18	23/6/10	11/1/4	328/54/103

on the design and analysis of specific systems, subsystems, components, mechanisms, or processes. The category of implementation and experimental issues (column IV) mostly consists of papers dealing with actual hardware systems, software systems, and system interfaces. These categories also need more contributions.

Finally, the lack of contributions in the application area (column V) is a major disappointment to the editors. By applications, it is meant the novel use of database systems for the solution and analysis of real-world problems.

The list of fourteen areas of speciality is mostly self-explanatory. However, let us single out some of the specialities for discussion.

In the area of security and access control (row 3), there is a high concentration on the theoretical study of statistical databases and their compromises due to inferences. The area of storage organization (row 4) deals not only with (physical) file structures, but also with directory structures. The use of primary and secondary indices in the directory and the implementation of directories utilizing, say, B-trees are also considered a part of storage organization study. There seems to have been a large number of papers on B-trees and of variation of B-trees for storage of indices.

The area of collection, classification, and analysis of data (row 6) belongs to the classical area of information storage and retrieval. There, the study of clustering, term similarity, and phrase distance is concentrated. TODS has been rather successful in attracting papers from this classical area in view of the competition from other journals such as *Information Processing and Management* (formerly known as *Information Storage and Retrieval*), *Journal of Documentation*, and *Journal of Library Automation*.

Two relatively new research areas are listed which are rather broad in their scope. They are distributed databases and hardware architecture (rows 9 and 10, respectively). Distributed databases incur new problems, for example, in database integrity and concurrency, which have been the topic of study for centralized, shared databases (row 7). Hardware architecture includes the study of database computers for formatted databases (records and files) and for unformatted databases (texts), intelligent I/O controllers, and electronic sorters.

Three important areas remain relatively inactive in terms of contributions to TODS. Restructuring (translation) is mainly concerned with the automatic conversion of a database (database program) from one operating environment to another. The study of performance/evaluation in database systems is long overdue. The lack of contributions is perhaps caused by the fact that industrial laboratories which have the resources and problems to conduct performance evaluations cannot publish their findings on working systems due to proprietary concerns while researchers at universities tend to lack either the resources or the problems. Furthermore, theoretical work on performance and evaluation for database systems has yet to be done. A third important area needing work is that of intelligent interfaces and human factors. Some of the interface work dealing with natural language is included in the data languages and language processing area (see row 2). The area of recovery and restart may be too narrow to warrant a large number of contributions.

Let us say a few words in general about the scope of TODS. At the time TODS was being considered by the ACM Council in 1975, a council member was

concerned that the scope of TODS would be too narrow to cover information science. Consequently, in its final approval, the Council stipulated that the scope of TODS be extended to cover information science (see Appendix B). The Editor-in-Chief of TODS therefore endeavored to define the areas covered by information science. Rather than rely on the American Society for Information Science for a definition (thereby creating a transactions similar in style and content to the *Journal of American Society for Information Science*), the Editor-in-Chief relied on a memo of May 2, 1975, written by the council member (see Appendix C). On page 2 of that memo, two recommendations were advanced:

- (1) that the term “data” be broadly defined to reflect the information content; and
- (2) that information science be defined to include such areas as storage organization, classification of data, search systems, retrieval and dissemination of data, vector matching, and language processing.

TODS has accommodated both recommendations. In particular, the term “data” is defined in the “Aim and Scope” of TODS as follows:

The term *data* is interpreted broadly to include textual, numeric, and signal data as well as data found in structured records.

This particular sentence was worked out with the help of Bruce Berra, the SIGIR representative to the TODS Editorial Advisory Board since 1975 and present chairman of SIGIR.

Furthermore, TODS has endeavored to cover all those areas listed above in the second recommendation. Specifically, storage organization is covered in the fourth row of the table; the classification of data and vector matching is included in the subject matter of the sixth row; search systems are covered in two different categories—software and hardware systems (rows 8 and 10, respectively); and dissemination of data is also covered in two different rows, namely, rows 8 and 9; finally, language processing is covered in row 2. Not only are the topics listed in the memo of May 2, 1979, covered, but the topic names are included in the original publication of the “Aim and Scope,” as quoted in the introduction.

3. THE RELATIONSHIP OF TODS WITH DATABASE CONFERENCES AND SIGs

Although the first issue of TODS did not appear until March 1976, preparations for the transactions began in the latter part of 1974. These preparations were supported by SIGBDP, SIGIR, and SIGMOD. In addition, the first International Conference on Very Large Data Bases (VLDB), which was held in September 1975, contributed a sizable budgetary surplus to the start-up cost of the transactions. The entire first issue of TODS consisted of recommended VLDB papers.

Ever since, arrangements have been made with the biannual SIGIR conference and the annual SIGMOD and VLDB conferences to recommend papers to TODS for publication. These arrangements are always facilitated by the respective program committee chairpersons and the Editor-in-Chief of TODS. Upon receiving the recommended papers from the program committee chairperson, the Editor-in-Chief sends the papers to referees. On the basis of the referees’ verbal recommendations and the Editor-in-Chief’s review, some of the recommended

papers are accepted conditionally for TODS. The authors of the conditionally accepted papers are then notified. These papers are distributed at the conference as a supplement to the conference proceedings. However, only the abstracts of the papers are included in the proceedings. The nonacceptance of recommended papers is low, since these papers have been reviewed by the conference's own reviewers beforehand. So far there have been only five unacceptable papers out of thirty-seven recommended. The authors of unacceptable papers are *not* informed of the TODS decision. Furthermore, their papers may then appear in the same proceedings. In this way, no author is penalized if TODS rejects his paper.

In the past four years TODS has accepted two papers from one SIGIR conference and thirty in total from four SIGMOD and four VLDB conferences. The low number of accepted papers from SIGIR conferences is due to the fact that only one SIGIR conference (in 1978) had recommended three papers to TODS. There have been no SIGBDP conferences.

The number of papers recommended by conferences varied considerably. For example, the second VLDB conference did not recommend any; the fifth VLDB conference recommended only three (of which two were accepted by TODS). Not all conditionally accepted papers have been published, since some of them have not yet completed the refereeing/revision cycle or have, in the meantime, been published elsewhere.

Unlike CACM where special issues devoted to conference papers can complete the CACM refereeing/revision cycle before the proceedings deadlines, TODS has difficulty in meeting such constraints. For example, for a May SIGMOD conference the March issue of TODS would be too early and the June issue would be too late. Furthermore, since 1976 VLDB conferences have been held abroad. SIGMOD went abroad once, and SIGIR may go to Great Britain next year. It is difficult, if not impossible, to overcome the problem of logistics, since TODS had no say in selecting the time and place of these conferences. Consequently, TODS has discontinued the special arrangement with the three SIGs.

4. A NOTE ON THE PRIOR PUBLICATION POLICY

In general, we feel that ACM's prior publication policy is not well understood by contributors. The situation is further aggravated by the fact that ACM recently started "rating" publications in terms of the following categories: refereed, reviewed, not reviewed, etc. Some contributors incorrectly conclude that unless a paper is published in a *refereed* journal, the paper is not considered as having been published and is therefore not in violation of the prior publication policy.

There is also the question of prior publication of abstracts of papers. Generally, the publication of an abstract constitutes no violation of prior publication policy. Problems do arise, however, when an abstract is extended to include much of the content of the paper. Both editors and referees then have the burden of determining the significance of an extended abstract.

In essence, we agree with CACM's practice and Bob Ashenhurst's articulation on these matters. The important criterion in determining whether a paper has a prior publication record or not is to assess whether the publication is archival in nature or not. Appearance in an archival publication is considered by TODS as a permanent (and therefore prior) publication.

We will attempt to clarify our policy in the following.

(1) TODS does not publish any paper which violates its prior publication policy. In other words, TODS does not intend to publish *reprints*!

(2) Every paper submitted to TODS must have an abstract. The publication of that abstract either in a conference proceedings or elsewhere represents no violation of the prior publication policy. In fact, TODS encourages authors to publish their abstracts and present their works at conferences and workshops for the purpose of rapid dissemination of scholarly work.

(3) If an extended abstract of a paper submitted to TODS is published or is about to be published, say, in a conference proceedings, the editors of TODS should be informed. In addition, copies of the extended abstract should be forwarded to the editor so that either the editor or the referees at the editor's request can determine whether the paper contains substantial results which are not included in the extended abstract. If the extended abstract merely states formally or describes informally the results of the paper, then the publication of the extended abstract constitutes no violation of the prior publication policy.

(4) If the extended abstract is essentially identical to the paper itself either in substance or style, then the editors of TODS will have to determine the nature of the publication in which the abstract appears. If the publication is archival in nature and can be purchased, such as a conference proceedings, then the publication of the extended abstract constitutes a violation of the prior publication policy. However, departmental technical reports, company newsletters, and SIG newsletters which cannot be subsequently purchased by the public, are normally considered nonarchival. Therefore, the inclusion of an extended abstract in such reports or newsletters will not constitute prior publication.

(5) In the past, SIGMOD, SIGIR, and VLDB conferences have practiced the following procedure in regard to their papers recommended for publication in TODS. Accepted papers from the conference are *not* included in the first printing of the conference proceedings. Instead, they are collected in a separate booklet to be distributed only to conference attendees. Once the papers are published in TODS, subsequent printings of the proceedings may include TODS papers as reprints. TODS has no objection to others reprinting its papers in accordance with the usual copyright laws and procedures.

5. THE AIM OF TODS

At its inauguration in 1976, TODS was intended by its proponents to function primarily as a publication for scholarly work in databases. Since the active researchers in the area of databases were estimated at that time to be around 150 worldwide, TODS was not expected to receive a large number of contributions. This explains why the initial page count for the new transactions was set at a mere 400 per year (by contrast, TOPLAS started with a page count of 600 per year). The initial subscription to TODS was also conservatively projected to be about 1,250.

Three years since, TODS has become the major publication for scholarly work on databases. TODS has essentially achieved the status of having the right of first rejection of any significant work on databases. We are considered in the database field by database researchers as *the* journal. Credit for earning such a good reputation for TODS is due to its hardworking referees.

The original projection of TODS subscriptions at the end of its third year was 2,600. Surprisingly, TODS subscriptions have now gone over 7,000. It is not clear to the editors from what sources the subscribers come, since the sum total of the SIGMOD and SIGIR membership without duplication is about one-half of that number. We have definitely picked up some SIGACT members in addition to SIGBDP members. Several SIGACT members have recently been moving into relational database theory. We also have a large number of subscribers from countries outside of the United States, which may be due to the role of the VLDB conferences. Since every VLDB conference, except the first one, has been held abroad, the recommendation of VLDB papers to TODS automatically brought TODS to the attention of VLDB conference participants. Presently, TODS subscriptions are growing at the healthy rate of 4 percent annually.

The editorial staff of TODS does not plan any major changes in its aims, scope, or policies in the foreseeable future. We will continue on in the same manner that has made TODS the highly regarded journal that it is today.

In conclusion, the editors feel that TODS indeed serves as a focal point for the dissemination of database research and development results, as envisioned in its original "Aim and Scope."

APPENDIX A. THE PROPOSAL FOR A NEW JOURNAL IN DATABASE SYSTEMS, AS SUBMITTED TO THE ACM COUNCIL ON JANUARY 28, 1975

MEMO TO: Messrs. Stockton Gaines
David Hsiao
Bernard Plagman

FROM: John Gosden
Chairman, Publications Board

SUBJECT: *Revised proposal*

Attached is a copy of the proposal as I have submitted it to the Council. There are two basic changes: the ACM-member rate is lowered to \$15 and the printing cost is less, using a less expensive binding. I had to re-work the finances. Originally, the proposal would have gone \$35,000 into the red; with the two changes it is about \$25,000. This proposal assumes that the volunteers will get the advertising commitments. I have a positive input from all but two of the Publications Board (that is all I have replies from so far). I suggest that you solicit an endorsement from SIGBDP.

MEMO TO: H.R.B. Grosch

COPIES: Publication Board, Headquarters

FROM: John Gosden
Chairman, Publications Board

SUBJECT: *Proposal for a new periodical on data bases*

Attached is a proposal for a new periodical on data bases submitted from members of SIGMOD. Originally, the group of people involved were negotiating with a for-

profit publisher, but when they learned that ACM would be interested in such a periodical, they decided to submit a proposal to ACM. They particularly asked for prompt processing. Therefore, I am submitting this proposal to the Council before it has completed processing by the Publications Board, but I expect to complete the processing before the Council meeting. If there are major objections (which I do not expect) the proposal will be withdrawn.

Although the proposal required a significant outlay (going some \$25,000 into the red in the second year), it breaks even by the third year, and has two major advantages:

- (i) it will be of interest to a significant number of business-related members
- (ii) it is potentially a good self-supporting publication.

It is proposed that we continue our trend to unbundling by not including this periodical as one of the standard options.

MEMORANDUM

31 December 1974

Revised: 27 January 1975

FROM: R. Stockton Gaines

SUBJECT: *A new journal on data bases*

Enclosed is a proposal for a new journal on data bases. This proposal was put together by David Hsiao and Stockton Gaines with assistance from Bernard Plagman. We have consulted with various ACM people including the Chairman of SIG/BDP and SIG/IR.

I will be happy to furnish further details about the proposed journal upon request.

A PROPOSAL FOR A NEW ACM PUBLICATION *ACM Transactions on Computers and Data Bases*

1. Special Justification

Because record keeping and decision making in industry and government are increasingly based on information stored in computer-processable databases, the need for improved computer technology for building, managing, and using these databases is becoming obvious. This need is particularly acute in a complex society where the interrelationships among various aspects of the society must be identified and represented. The information which must be used to represent these relationships and to make sound decisions grows more complex in nature and becomes greater in size. Furthermore, the increasing on-line use of computer systems, and the proliferation and mass introduction of multilevel secondary storage which can offer on-line storage ranging from very inexpensive, high-capacity, low-speed archival memory to very expensive, low-volume, high-speed fixed-head rotating devices suggest that future computer systems will primarily be oriented toward database management. The sheer size of future on-line databases will require the computer system to manage logical as well as physical

resources. The management of logical resources is concerned with the organization, access, storage, and sharing of the data and programs in the database. In addition, the sharing of data means that the database system must be able to protect the privacy of and control access to the users' data.

The journal can serve as a focal point for an integrated dissemination of database research and development on storage and processor hardware, business applications, information analysis, and file management. These areas are particularly relevant to the following special interest groups: BDP, IR, and MOD. It would also embrace the Management/Database Systems section of the CACM.

2. Proposed Name

ACM Transactions on Computers and Data Bases

ACM Transactions on Data Bases

ACM Transactions on Data Base Systems

3. Content and Format

A. The journal will publish high-quality research papers on the development and application of computer databases. Papers on all aspects of computer databases will be welcome, including language and system considerations especially relevant to the support of databases.

The emphasis of the content is on data structures, access strategies, access control techniques, data security and production, design and implementation of database software, database related languages including data description languages and procedural and nonprocedural data manipulation languages, database utilities, data translation techniques, distributed database problems and techniques, database recovery and restart, database restructuring, adaptive data structures, concurrent access techniques, database (hardware) architecture, performance and evaluation, and related subjects such as privacy and economic issues.

The journal will *not* compete with proceedings of various SIG workshops. The journal will neither publish working papers nor specialize on narrow topics. However, good papers from workshops, symposia, and conferences would be acceptable. The editors expect to work with the organizers of such meetings to select good papers, and avoid duplicate publication.

B. The number of relevant papers published in the last three years is very large. Addendum A contains a list of the relevant contents in CACM. This shows papers that probably would have appeared in the new journal instead of CACM in the last three years. There were four papers totaling 24 pages in 1972, eight papers totaling 51 pages in 1973, and five papers totaling 27 pages in 1974. In 1974, a large number of database papers were published at major conferences: 19 papers at IFIP '74, 8 complete papers plus 5 position papers at ACM '74, and 12 papers at NCC '74. The SIGFIDET (now SIGMOD) workshop held in May 1974 had a large number of high-quality papers (27 were published in the Proceedings). We conclude that many papers are being written in the database field. Probably many more would have been submitted to and published in the CACM had there not been so many other opportunities for publication in 1974.

C. The page size and format will be similar to that of the journal of the ACM.

4. Frequency and Size of Issues

The journal would be quarterly with an initial size of about 400 pages per year. The lengths of articles would be longer than those appearing in the workshop proceedings. It would average about five to six articles per issue.

5. Authors

Authors will mainly come from two different sources: academic communities such as universities and research and development organizations such as SRI and IBM Research. Their outlets were primarily in the Management/Database System Section of the CACM and conference and workshop proceedings. The growing interest and funding in database research (in particular, ARPA's planned emphasis on very large databases) will prompt more research results and demand more suitable outlets for publishable results.

6. Editors and Referees

There would be one editor and four associate editors. In addition, there would be an editorial advisory board appointed by ACM publications board, including one member from each of the following SIGs: BDP, IR, and MOD.

We are reasonably assured that the people listed on pages 396-398 will be interested in serving as editors and board members.

7. Potential Subscribers

We suspect, from conversations with many people in the database field, that there will be a minimum impact on the circulation of existing ACM publications if this journal is created. The truth is that there are currently very few outlets for papers in the database area that are very appealing to workers in the area. There is a tendency on the part of workers in this area to think that much of the formal publication activity in the computer field is too abstract or unrelated to their practical interests. Thus, there is a greater tendency in this area to look to conferences and workshops as an outlet for published results.

The net effect of this new journal may be to broaden the appeal of the ACM to a number of people who now feel that they get very little benefit from ACM membership. The present choice of the CACM plus one of JACM, CR, or *Computing Surveys* is not very appealing to many database people, and for this reason many of them do not belong to the ACM. We therefore foresee little impact on the circulation of existing publications and a good opportunity to increase the membership of the ACM through the offering of a publication of interest to a segment of the computer fraternity not currently well served by the ACM.

Editor:

David K. Hsiao
Department of Computer and Information Science
The Ohio State University
Columbus, Ohio

Associate Editors:

Professor Edgar Sibley
Information Systems Management
University of Maryland
College Park, Maryland 20742

Professor Stuart E. Madnick
Sloan School of Management
Massachusetts Institute of Technology
Cambridge, Massachusetts

Professor Howard L. Morgan
The Wharton School
University of Pennsylvania
Philadelphia, Pennsylvania

Editorial Advisory Board:

A representative of SIGBDP, SIGIR, and SIGMOD.

Dr. E. F. Codd
IBM Research Laboratory
Monterey and Cottle Roads
San Jose, California

Mr. Marvin Denicoff
Information Systems Program
Office of Naval Research
Arlington, Virginia

Professor Edward Feustel
Department of Electrical Engineering
Rice University
Houston, Texas

Dr. Craig Fields
Advanced Research Projects Agency
Department of Defense
Arlington, Virginia

Professor Jorge Gana
Centro De Computacion
Universidad del Norte
Antofagasta, Chile

Mr. H. P. Gassmann
Directorate for Scientific Affairs
Organization for Economic Co-operation and Development
Paris, France

Professor Michael Hammer
Project MAC
Massachusetts Institute of Technology
Cambridge, Massachusetts

Captain Grace Murray Hopper,
USNR
Navy Programming Languages Section

Department of the Navy
The Pentagon
Washington, D.C.

Professor Frank Land
London School of Economics and Political Science
University of London
London, Great Britain

Professor Börje Langefors
University of Stockholm
Stockholm, Sweden

Dr. Thomas Marill
Computer Corporation of America
Cambridge, Massachusetts

Professor E. J. Neuhold
Institut für Informatik
Universität Stuttgart
Stuttgart, Germany

Mr. Thomas Osvald
Datainspektionen
Stockholm, Sweden

Dr. Sakti P. Ghosh
IBM Research Laboratory
Monterey and Cottle Roads
San Jose, California

Professor S. V. Ranganaswamy
School of Automation
India Institute of Science
Bangalore, India

Dr. R. Stockton Gaines
Information Sciences Department
The Rand Corporation
1700 Main Street
Santa Monica, California

Professor Ben Shneiderman
Computer Science Department
Indiana University
Bloomington, Indiana

Dr. Peter Weiner
Information Sciences Department
The Rand Corporation
Santa Monica, California

Professor Richard Peebles
Department of Computer Science
University of Waterloo
Waterloo, Ontario, Canada

Mr. Clark Weissman
Systems Development Corporation
Santa Monica, California

Professor Eugene Wong
Department of Electrical Engineering
and Computer Science
University of California
Berkeley, California

Professor Takeo Yamamoto
Computer Centre
University of Tokyo
Tokyo, Japan

Professor S. B. Yao
Department of Computer Science
Purdue University
Lafayette, Indiana

The refereeing and editorial process would be a continuation of current policies of ACM publications.

8. Readership and Competition

Potential Subscribers:

	<u>Theoretical</u>	<u>Initial (Guess)</u>
ACM mem- bers	20,000	750*
Libraries	3,300	400
Other society members	20,000	100

Guess Estimated Circulation:

	<u>Year</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
Members	750	900	1,000
Nonmembers	500	800	1,600

* The membership in BDP, IR, and MOD total 5,500. Thus, this figure of 750 is conservative.
ACM Transactions on Database Systems, Vol. 5, No. 4, December 1980.

9. Timetable

February, 1975	ACM Council approval
March, 1975	Paper solicitation begins
September, 1975	Production initiated
January, 1976	First issue published

10. Price Structure

ACM Members	\$20.00 [Altered to \$15 by Publication Board]
Nonmembers	40.00

11. Start-Up Costs

Design costs	\$2,000
Advertising promotion	1,500
Programming and data processing	1,000
Salaries, taxes, and benefits**	3,500
Miscellaneous costs	<u>1,000</u>
	<u>9,000</u>

** One full-time employee at HQ from Sept.–Dec., 1975. Better estimates of ACM headquarters costs many be available soon, based on actual start-up figures from TOMS.

Financial Estimates (Revised by J. Gosden)

	Calendar Year			
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
ACM subscribers (\$15)	750	900	1,000	1,000
Nonmembers (\$40)	500	800	1,600	1,600
Income				
Conference (1)	4,000			
ACM subscribers	10,250	13,500	15,000	15,000
Nonmembers	20,000	32,000	64,000	64,000
Advertising (2)	<u>4,000</u>	<u>5,000</u>	<u>6,000</u>	<u>6,000</u>
	39,250	50,500	85,000	85,000
Expenses (3)				
Start-up	9,000			
Printing (4)	20,200	23,600	27,200	30,800
Distribution/storage	6,700	7,500	8,400	9,400
Editors expenses	3,600	3,600	3,600	3,600
Salaries, taxes, benefits	15,000	16,000	17,000	18,000
Other costs	<u>4,300</u>	<u>4,600</u>	<u>4,900</u>	<u>5,200</u>
	58,800	61,000	67,000	
	55,300			
Net income annual	−19,550	−4,800	+23,900	+18,000
Net income cumulative	−19,550	−24,350	−450	+17,550

Notes

(1) The Rand Corporation is planning to support a conference on databases in September 1975. Funds are expected to be available to defray the cost of the first issue or two, as part of the proceedings of the conference.

(2) Advertising income is expected from the commercial vendors and other sources.

(3) Expenses are based on the TOMS proposal estimates. An argument for not increasing this estimate of expenses is that this journal will have considerably less symbology in the text. This will reduce the cost of printing and allow for additional copies to be printed at the same cost as was estimated for TOMS.

(4) A print run of 2,000, 2,500, and 3,000 in each year.

ADDENDUM A

Analysis of Relevant Articles from 1972–1974 Issues of CACM

<u>Date</u>	<u>Page</u>	<u>Author</u>	<u>Title</u>
5/72	7	Mullin	An Improved Index Sequential ...
6/72	9	Bachman	The Evolution of Storage Structures
9/72	7	Ghosh	File Organization: ...
11/72	1	Lum and Yuen	Additional Results on Key-to-Address ...
1/73	1	Bays	... When to Chain Overflow Items ...
4/73	7	Buckhard and Keller	... Best-Match File Searching
6/73	4	Shneiderman	Optimal Data Base Reorganization ...
7/73	5	Huang	A Note on Information Organization and Storage
9/73	9	Cardenas	Evaluation and Selection of File Organization ...
10/73	10	Lum	... Analysis of Key-to-Address ...
12/73	10	Sibley and Taylor	A Data Definition and Mapping Language
2/74	7	Rothnie and Lozano	Attribute Based File Organization ...
10/74	8	Shneiderman	Structured Data Structures
10/74	8	Canaday et al.	A Back-End Computer for Data Base ...
11/74	2	Brown and Werner	... Data Management System Application ...
11/74	2	Van Rijsbergen	The Best-Match Problem ...

APPENDIX B. A MEMO OF JUNE 26, 1975, INDICATING THE APPROVAL OF THE PROPOSED NEW JOURNAL (TODS)

TO: Publications Board, Editors-in-Chief, Headquarters

COPIES: President, Vice-President

FROM: John Gosden
Chairman, Publications Board

SUBJECT: 1976 Publications Board Page and Periodical Budget

At the ACM meetings in Anaheim the following occurred.

1. Budgets were approved that permit the following page allocations.

CACM "Technical-Scholarly"	450
General Interest	250
JACM	704
CREV	528
CSUR	320
TOMS	400
TODS (1/2 year)	200

2. TODS (Transactions on Database Systems) was approved subject to extending the scope to cover Information Science.

3. It was agreed that the survey concerning ACM publications be charged against the budget for the JAM (Journal for all Members) study.
4. I stated that, based on a rough assessment that, if
 - (a) CACM as it stands today were divided into a JAM Journal for all members (plus the advertisements), and TOXX All the non-JAM material
 - (b) All current recipients of CACM that are full dues paying (\$35) members get the option not to have TOXX; but non-member subscribers and others continue to get both.
 - (c) Full members dues reduce by \$4 if they de-select and increase by \$3 (\$7 difference) if they select TOXX.

Then the difference in costs to ACM requires only about 700 subscribers to TOXX.

I suggested that this is a feasible thing to do today. There is enough JAM material, and it can be expanded and paid for gradually. There is, I believe, negligible risk. I will ask Headquarters to review my crude estimates.

5. The budget for supporting volunteer editors expenses was increased.

APPENDIX C. A MEMO BY THE NORTHEAST REGIONAL
REPRESENTATIVE TO ACM COUNCIL DATED MAY 2, 1975

Members of the ACM Council and of the ACM Publications Board

I am writing in connection with the proposed new publication tentatively entitled the "ACM Transactions on Data Bases." I am convinced for several reasons that this journal should not be chartered using the currently contemplated structure. I want briefly to state these reasons, and to propose an alternative mode of procedure.

I am concerned with the lack of overall plan and the almost haphazard way in which we slide into new publication ventures. It seems to me that if we are to have any future influence in the area of computer science publications, we need to make sure that certain prerequisites are fulfilled:

- (a) the journal should cover a recognizable subsection of the field that encompasses and unifies an area of some substance;
- (b) the journal should *not* be chartered in response to some current fad that is likely to prove ephemeral in the long run;
- (c) the journal should fit into a framework that subdivides the computer field into an overall structure.

On all three counts the data base journal fails. What has come to be called "data base information" is only a subsection of a larger information processing field (it deals exclusively with information structured in a special way). There is no good reason why personnel files, for example, should fit into what people currently call "data base" processing, whereas library files should not. Furthermore, while there has been a tremendous flurry of activity lately in the data base area, caused in part by the excitement relating to Ted Codd's "relational data base" approach, I do not believe for many reasons that this situation will last. In fact, most of the material that currently circulates in this area will be soon forgotten. Obviously, we also have no overall plan.

I do not expect that I can structure the computer field on my own to everyone's satisfaction. The following recognizable subsections might however be used at least for purposes of discussion:

- 1. Programming Languages and Systems (CACM)
- 2. Complexity and Algorithm Theory (JACM)
- 3. Numerical Mathematics (incl. some natural science applications)
- 4. Computer Organization and Hardware
- 5. Artificial Intelligence (incl. pattern matching, on-line processing, learning theory, etc)
- 6. Management Environment (incl. simulation, modelling, operations research, etc.)
- 7. Information Science

I am concerned here with this latter area. Information science might be defined as "concerned with the collection, analysis, classification, storage, retrieval, transmission and dissemination of recorded data and intelligence." Information in this context specifically encompasses two types of data:

- (a) structured entities represented by property lists that are representable abstractly in matrix form (incl., for example, personnel files, inventory control files, etc.)
- (b) linguistic information typified by written texts in the form of documents, books, citations, etc.

The information of type (b) also exhibits a structure but the structure is normally more complex and might abstractly require representation in terms of graphs.

A journal entitled “Transactions on Information Science” would deal with information in both of the above senses, and would include topics such as

storage organization
classification of data
search systems
retrieval and dissemination of data
vector matching
language processing, etc.

Information science is a unified subarea of the computing field; there is no journal that deals primarily with the computer aspects of information science. If the Council agrees, I would propose the following motion:

“That the ACM Publications Board be instructed to work out with the leadership of the proposed data base journal procedures that would broaden the editorial representation and scope of the proposed publication so as to transform it into a Transactions on Information Science in the sense described in the attached document; and that the Publications Board be asked to present at the next Council meeting an appropriate plan to that effect.”

Sincerely,

Gerry Salton

GERARD SALTON
*Northeast Regional
Representative*

ACKNOWLEDGMENTS

Thanks are due to the Associate Editors of TODS (in particular, David Kuck, Vincent Lum, Stuart Madnick, and Howard Morgan), Robert Ashenurst, Douglas Kerr, Stuart Lynn, and Richard Underwood who assisted in the preparation of this review.

Thanks are also due to the authors and referees of TODS papers. By virtue of their contributions, they have made TODS what it is today.

Written August 1979; revised January 1980