DATABASE MANAGEMENT SYSTEMS
PAST AND PRESENT

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The theme of this note is on the two points:
1.Many of the ideas discussed in both data base and the other two areas were well known in the sixties -- some go back to the fifties.
2.Too much attention was placed on trivia.
Each theme is now expanded...

1. LOSS OF HISTORY

The world of database management goes way back. In an article by Fry and myself (ref. 1), the RPG family were shown to start in 1956, the major hierarchical families in 1958 and 1962, and the network family in 1964. All these systems were well implemented with many excellent commercial offerings by the late sixties.

In the 1969 and 1971 CODASYL Systems Committee Reports (ref. 2 and 3), attempts were made to classify the systems, and the essential features were expected to include a data structure facility, separate (and data independent) storage structure, query and/or host language interfaces, and system survival features (such as restart and recovery and other integrity features). The relational system, as loosely defined in 1970, was not available in any implementation at the time of these surveys; it had no data definition or system integrity features as well as those practical aspects that make a viable commercial system. Of course, by now some are available, though they are not used in a significant number compared with all the rest.

The ideas of, say, ADAM (1962) included the ability to define new syntax for and extensions to the accessing language. The ideas of NIPS (1969) included data types for latitude and longitude with operators like: "find the vehicles within X miles of vehicle Y". The concept of database procedures (available in a slightly limited form in IDS - the Cullinane product) were laid down in the 1971 DBTG report. These allow triggering of procedures by "database conditions" that might occur during update. Data checking (better than normal integer and floating point) has been around since the early sixties - and, of course, database procedures are currently used to achieve this in available systems. A very good internal IBM extension to an IMS implementation has made for excellent triggered invoking of the database procedures that check for valid range and for conditional ranges, etc. (ref. 4).

2. SMALL DETAIL v. REAL WORLD

It seemed that much of the discussion centered around rather academically interesting but somewhat constrained problems. As a practitioner, I found it difficult to imagine relevancy for a great deal of the discussion. One does not, of course, expect that research is immediately applicable, but I doubt whether much will ever have useful application. Yet there are substantial problems, and industry has started to solve them. It would be terribly sad if we manage to prove once again that "computer science is irrelevant to the real practice of computing".

References

1. J. P. Fry and E. H. Sibley, "Evolution of Data Base Management Systems", ACM Computing Surveys, March 1976, pp. 7-42.

2. CODASYL Systems Committee, "A Survey of Generalized Data Base Management Systems", May 1969 (published by ACM - out of print).

3. CODASYL Systems Committee, "Feature Analysis of Generalized Data Base ManagementSystems", May 1971 (published by ACM).

4. G. F. Heyne and C. J. Daniel, "Design Techniques for a User Controlled DB/DC System", IBM Systems Journal, Vol. 16, No. 4 (1977) pp. 344-362.