

A management consultant's view of the present state of CAA, and some thoughts on its possible future

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1.1. Introduction

After almost two decades, the association *Computer Applications in Archaeology* (CAA) has undergone a considerable metamorphosis, the transitions being more pronounced in recent years. The association has withstood the passage of time and has adapted to changing intellectual climates.

The first meeting was held in the basement of the Mathematics Building at the University of Birmingham in 1973, the result of discussions among UK research groups at earlier scientific conferences. This was the sole venue until, in the early 1980s, alternate meetings were held at other British universities, with a biannual return to Birmingham. After 1988 there were no meetings at Birmingham, but the conference was still confined to venues in the UK. Finally in 1992 the conference ventured beyond the insular environment of UK to Aarhus in Denmark. After the current meeting at Stoke-on-Trent in 1993, meetings are planned at Glasgow in 1994 and Leiden, The Netherlands in 1995.

This paper gives a management consultant's view of the present state of CAA, and suggests future directions for the development of the association, for consideration.

1993 is a special year for CAA as it marks the 21st annual conference, a "coming of age." As the retiring Chairman, I would like to take the opportunity of putting CAA in its historical context and to record some of the key events and issues which shaped CAA as we know it today.

This paper has two parts; the first gives a potted history of CAA since its beginnings in 1973; the second is a personal assessment of CAA, and it offers a few comments and suggestions relating to possible future directions for CAA. This latter section is written from the point of view of a management consultant called in to advise what actions are necessary to enable the association to increase membership, financial reserves and stature in an international arena.

1.2. A brief history of CAA

According to John Wilcock (1973), in his editorial in the proceedings of the first CAA, the idea of a conference on *Computer Applications in Archaeology* had its origin in a group of archaeologists and computer scientists working in the Midlands. They were specifically concerned, at the time, with setting up information retrieval systems for archaeologists, and matters came to a head during discussions at the 1970 Conference *Mathematics in the Archaeological and Historical Sciences*, held in Mamaia, Romania (Wilcock 1973, p. 4). What was the motivation for organising the first CAA meeting? It appears that there was a widespread perception in the early 1970s that an ex-

plosion of computer-based methods was occurring, but there was no synergy, as much of the work was being conducted in isolation with little exchange or cross-fertilisation of ideas. It seemed obvious that archaeologists and computer scientists had to be encouraged to talk and work together, and to share their results regularly. In the end, it was a group of academics who were the first workers to create an environment in which archaeologists and computer scientists could establish a symbiotic relationship. Naturally, they chose an environment that they understood and were comfortable with (*i.e.* a conference).

CAA began as a meeting organised by Sue Laflin on Friday 26th and Saturday 27th January 1973, in the basement of the Mathematics Building of the University of Birmingham — the "Rummidge" of David Lodge's famous campus novels.

The published proceedings (Wilcock 1973) record the names of 46 participants, including the nine contributors to the eight papers presented at the meeting. The papers covered such diverse topics as the application of Principal Components Analysis in sediment studies, a number of information retrieval systems (*i.e.* one for use by museums, the other intended for field units), the use of remote terminals for on-site recording, and the mathematical analysis of Romano-British pottery assemblages. The participants felt that the two-day conference was so worthwhile that they decided to hold a second one the following year.

What sorts of people attended the meeting? According to the List of Participants (Wilcock 1973, p. 31), quite a wide cross-spectrum of interested parties took part in the event. There were representatives from academia (including lecturers and researchers from archaeology, computer science, and other departments), the museum world, local government, archaeological field units, industry and some independent individuals whose affiliations are not recorded.

The proceedings *Computer Applications and Archaeology 1* were edited by John Wilcock and published three months after the meeting as issue 9 of *Science and Archaeology* (ISSN 0586-9668). However, at the second meeting CAA74, a quick-and-easy, but low quality, publication method was adopted (A5 offset-litho, with a taped binding which unfortunately exhibited a tendency to disintegrate). The rigours of strong editorial policy were ignored, and the benefits of professional marketing (for the wider dissemination of information) were abandoned. No ISBN number was sought to help other workers in the field discover these papers. Camera-ready papers in a wide variety of different typefaces were handed in to the organisers, to be reproduced unchanged, and sold in limited numbers at the following meeting. No editing took place and the contributors

had no opportunity to revise or amend their papers to take into account feedback from the meeting. On the other hand, the papers had a certain raw vitality, being hot off the daisy-wheel or golf-ball printers of the day. This style of publishing was unfortunately adopted for over 10 years thereafter.

Throughout the 1970s meetings were held in Birmingham. Most of the participants were from the UK, but occasionally visitors would make a short stopover in Britain to report on developments in continental Europe and North America. Unfortunately, the quality of papers suffered towards the end of the 1970s and numbers started to dwindle at an alarming rate. The low-point came in 1980. Only six papers and three abstracts appear in that year's Proceedings. In addition there was a remarkable one-page editorial by Sue Laflin attacking those she appeared to regard as traitors to the CAA cause. The very low numbers of participants in 1980 had prompted John Wilcock to circulate a document expressing concern for the future of the association. This precipitated a meeting of interested parties to discuss the viability of the conference, which was convened in the Institute of Archaeology, London. Whilst agreeing that there was a need for the CAA conferences, the London meeting also recognised that greater efforts were required to provide more effective publicity and organisation. It was also decided that the conference would henceforth be run biannually at Birmingham, and elsewhere in alternate years; the Institute of Archaeology in London was selected as the 1981 venue.

CAA began to visit other British centres of learning in the years between the continued biannual meetings at Birmingham. After London (1981), there followed meetings in Bradford (1983) and London again (1985). At each new venue the number of newcomers rose because of influxes from the local population, especially research students.

Needless to remark, the predominant characteristics of the typical CAA-goer had changed over the years. In the early days, computer applications in archaeology were mainly the work of enthusiasts, and they did not arise from the originator's day-to-day work. This state of affairs changed radically in the early 1980s as the revolution in microcomputers made access to significant computer power possible for a very much larger number of people. Many more archaeologists became computer literate. "Computing Officers" began to appear in archaeological organisations. In fact, the professional computer-using archaeologist had emerged as a distinct type of worker. This new breed of CAA participant generated ideas and values that were somewhat different from those established by the early pioneers of the subject.

By the middle of the 1980s, a feeling of restlessness became noticeable, with movements for change, expansion and more experimentation in the format and venue of CAA. People proposed the idea that CAA did not belong to any particular university or indeed country. Gary Lock summarised this unease in his review of the 1985 conference:

"After many years of CAA the time is ripe for a public airing of the status and validity of the conference." (Lock 1985, p. 15).

In 1986 CAA returned to Birmingham. The meeting departed from tradition with an experiment to pre-print and

publish that year's proceedings at the meeting. If the papers had been pre-circulated this might have enabled more considered discussion in the sessions. However, this was not the case, the experiment was judged unsuccessful, and any future repetition was ruled out by a motion passed in the following year's Business Meeting. The intensity of the unease continued to rise unabated.

In 1987 the venue for CAA was Leicester and feelings were running fairly high. There was now a loud clamour of discontent, and some revolutionary activity behind the scenes. In a heated final session the meeting elected a Steering Committee to look into the future development of CAA. This committee, chaired by Clive Orton, was given wide-ranging powers, including that of removing the CAA conference to another location if a venue was deemed unsatisfactory and, much more importantly, the mandate of preparing a draft constitution to be presented at the following meeting (*i.e.* CAA88).

The Leicester meeting was noteworthy for several other reasons. For instance, CAA participation had grown so much that parallel sessions became necessary, and these could be organised in themes, almost mini-conferences under the overall CAA banner. Workshops and tutorial sessions were introduced. Poster and demonstration sessions allowed projects and live systems to be presented in a much more practical and tangible way than the typical lecture format. At Leicester the CAA proceedings were edited and text-formatted to a common standard, published in an established series (*i.e.* British Archaeological Reports, International Series) and registered under the ISBN system. There were murmurings from those who were scandalised by the increased cost (*i.e.* £18!) for the cover price of the newly vamped CAA87 BAR proceedings (Ruggles and Rahtz 1988). On a more positive note, however, a great many more libraries began to take the series of Proceedings, and hence many more readers began to see the work of CAA.

CAA returned to Birmingham in 1988 (Lock 1988). Attendance was high and there was a noticeable increase in the number of members from overseas. The big event was the Business Meeting where the membership approved (with a few minor amendments) the constitution drafted by the Steering Committee. The anachronistic, but well-established, acronym CAA was retained as the general name of the newly constituted association, but a sub-title was also adopted to reflect the full range of topics addressed by CAA members. Despite being at Birmingham, the publication was in the newly-adopted BAR series, which produced even greater outrage in some circles, since the price leapt to £34 for the two volumes of CAA88 (Rahtz 1988). It took another year before the official title of the association — CAA: *Computer Applications and Quantitative Methods in Archaeology* — finally appeared in its correct form on the cover of the CAA89 proceedings (Rahtz and Richards 1989)!

CAA now became much more ambitious in its choice of venues. Meetings moved around England to York in 1989 (Rahtz and Richards 1989), Southampton in 1990 (Lockyear and Rahtz 1991) and Oxford in 1991 (Lock and Moffett 1992). The association continued to grow in terms of the quantity and quality of work presented at the meet-

ing. At the same time international interest was also expanding. Reviews of CAA conferences and proceedings now appear regularly in the international journals (e.g. *Archeologia e Calcolatori* (Blake 1990), *KARK* (*inter alia* Madsen 1992), and *Complutum* (Martinez 1991)). If imitation is the finest form of flattery then CAA has been complimented by colleagues in Japan, Spain and Hungary who have emulated its meetings in their countries. With this increasingly cosmopolitan experience, CAA finally felt able to venture outside the insular environment of the UK to north-west continental Europe. At Aarhus in Denmark in 1992 CAA experienced an exceptionally successful international debut. Attendance was the highest ever, and the huge increase in international participation (*i.e.* 21 countries represented) was matched by only a small drop in the numbers of British colleagues attending (Moffett 1992; Andresen, Madsen and Scollar 1993). Ninety papers were presented in three sets of parallel sessions over three days of intensive and stimulating discussion and interaction. Over the last few years this increase in the breadth and maturity of CAA meetings has been complemented by corresponding improvements in the quality of production and content of the proceedings. The last collection from the Aarhus meeting contains 51 papers collected into several main groupings (*i.e.* papers on the application of computers in Prospecting and Image Processing, Geographic Information Systems, Databases, Artificial Intelligence, Statistical Approaches, Archaeological Education, Visualisation and Hypermedia). Teams of editors are now necessary and some papers are not published because they do not meet their exacting standards.

In 1993 Staffordshire University hosted the 21st meeting of CAA at its Stoke-on-Trent campus, England. Scotland and the University of Glasgow will host CAA for the first time in 1994, and a Dutch consortium of archaeological organisations is orchestrating the 1995 meeting to be held in Leiden, The Netherlands. The future for CAA looks bright indeed.

1.3. An appraisal of CAA today

There are two crucial articles in CAA's constitution. Article 2 defines the *why* of CAA, namely:

"to bring together archaeologists, mathematicians, and computer scientists; to encourage communication between these disciplines; to give a survey of present work in the field; and to stimulate discussion and future progress".

Article 9 (ii), which defines the *how* of CAA policy and procedure, is the key to making CAA relevant and successful:

"Once appointed, the organisers shall be given as much freedom as possible to experiment with new ideas, so that successive Conferences do not stagnate into a traditional format but continue to change and grow with changing times. Care should be taken to keep its appeal as wide as possible".

Successive Steering Committees have worked to bring positive change to the association by, for example, putting CAA on a more secure financial footing, so as to enable more bursaries and, if necessary, assist a local organiser who runs

into funding problems. Wider international appeal and participation is being promoted by co-opting onto the Steering Committee representatives from aspiring regional chapters of CAA such as that in Japan. Despite these progressive moves, there is clearly scope for many more beneficial changes. However, improvements can only be initiated and fostered by the Steering Committee. Ultimately, it is the responsibility of the membership to bring about real changes.

What of CAA today? What might a Management Consultant looking at this association recommend? In a real situation the Management Consultant would have a client who needs a solution to a problem that the client understands, accepts and is willing to act upon. The consultant should be external to the client organisation and impartial. Not all these prerequisites can be satisfied in the present exercise, but we can still usefully bring to bear some of the major analytical approaches generally employed in the so-called consultancy process: select the issues (or topics) to be considered; generate hypotheses to test; define questions to explore the hypotheses; define the data framework to which the questions can be put; produce findings; draw conclusions and make some recommendations. In the remainder of this paper we will only sketch out the methodology, placing more emphasis on the production of constructive recommendations.

CAA wishes to increase its membership, financial reserves and stature internationally. The recommendations set out below are intended to broaden the appeal of CAA to a wider audience, thus increasing membership, funds and international recognition.

Intuition and personal acquaintance suggested that the three main areas affecting membership and international credibility were the CAA culture, communication issues and operating constraints (Fig 1.1).

The first *issue* (or topic) to be considered is that of the *culture* of CAA. Here we are looking at the membership profile. Who participates in CAA? Are there any obvious biases apparent in the membership profile in terms of, for instance, imbalances in the distribution of gender, age, mother-tongue, nationality and occupation. Does it adopt the most appropriate venues and formats for its meetings? Does CAA project itself well to the outside world? Is its internal structure appropriate today?

The second issue to be looked at is that of *communication* which, in the present context, refers to both external and internal channels. Apart from announcements, and the sessions at the conferences themselves, how does the Steering Committee exchange news and views with the membership? How well does CAA publicise its own existence and role to the wider archaeological, mathematical, and computer science communities and beyond? What channels are available to CAA and which ones are exploited? Is CAA delivering its messages as effectively as it could?

The third issue which must be taken into account is that of *operating constraints*. Here we are referring to issues of funding, sponsorship, and bursaries, not to mention committee structure, the constitutional framework, and geographic and language barriers.

Issue Diagram

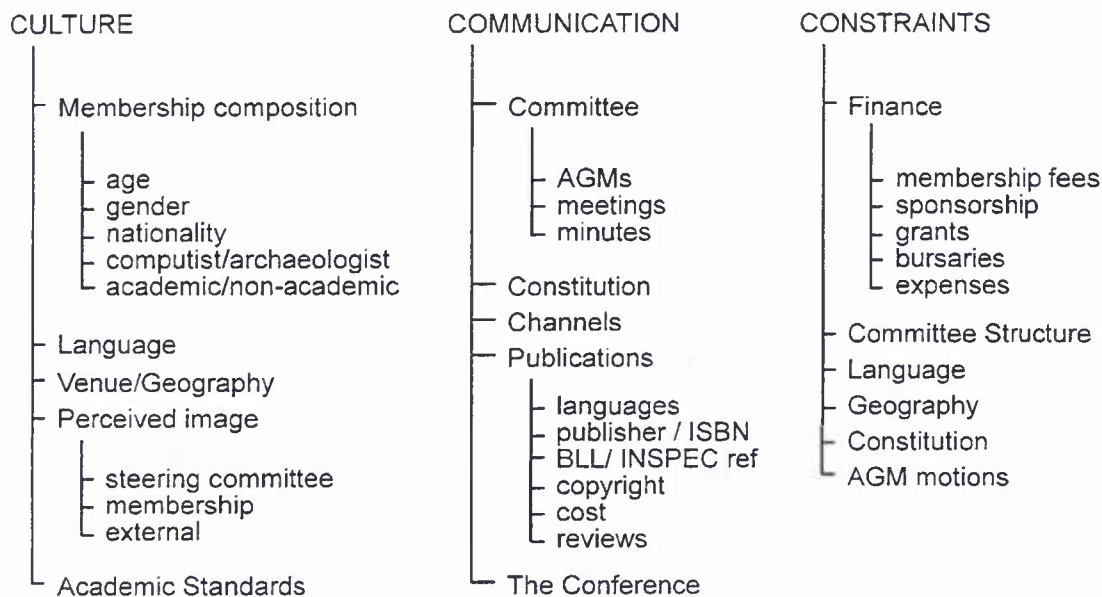


Figure 1.1: A management consultant's view of CAA.

To explore these issues a long series of hypotheses about the workings and limitations of CAA was generated. Associated with each hypothesis was a key question intended to bring out the central issue behind the speculation, and additional ancillary questions were also drawn up to check that the key question was sufficiently focused. For example, one hypothesis was that *CAA's internal communication channels are impeding the free flow of information between members and the Steering Committee*. The key question here had to be: *How do members get their views aired?* One check question was: *Does CAA have a mail point to which members can send suggestions and opinions?* Another was *Does the Steering Committee employ an agreed mechanism for discussing policy, etc. other than through formal committee meetings?*

Having produced a long list of hypotheses and questions the next step was to identify what sources of relevant data were available for consultation. The sources were ranked by accessibility and potential information content, so as to optimise the amount of detail to be explored in the given time constraints. The data framework that emerged included a document search of the following sources:

- the CAA archive which consists largely of letters and memoranda;
- minutes of the CAA Steering Committee meetings, including the AGMs;
- the CAA constitution (including amendments);
- CAA's mailing lists;
- CAA conference programmes, abstracts and calls for papers;
- the CAA proceedings, especially editorials and prefaces;
- reviews and other published commentary about CAA.
- Some expert opinion from what might be termed industry experts was also called upon through:
- informal conversations with colleagues;

- a small-scale survey conducted over Internet;
- the author's personal experience and observation.

There is not enough space for, or little point in, rehearsing all the various findings and conclusions thrown up during this exercise. Indeed several findings were ambiguous and could lead to several very different conclusions. For instance, the number of female members (recognised through their names) is quite substantial, but their contribution (in terms of the number of published papers) is not in proportion. Similarly, there have been comparatively few female Steering Committee members, and all these have been *ex-officio* positions. Instead, the approach adopted here is to make recommendations on a small number of relatively clear problems, which, if implemented, are likely to make an obvious contribution to making CAA more successful in the immediate future.

1.4. Conclusions and recommendations

Clearly CAA is too introvert. This introversion is most obvious when one examines the names which appear in the lists of participants and published papers; many appear with monotonous regularity. While it is a good thing to have a faithful core, there is a danger of fossilising the *status quo* into a *club*. This inward-looking nature means that CAA members habitually spend much of their time interacting with the same set of people and institutional viewpoints. Such conservatism runs counter to CAA's stated aim of *appealing to as wide an audience as possible*.

Until the Aarhus meeting, an impartial observer could be forgiven for thinking that the average CAA attendee was British, male and academic. There were relatively few women, young people, or field archaeologists and no effort was made to cater for potential contributors from outside the anglophone world.

CAA has not consulted widely. It continues to tap the same sources for new blood. To date, no effort has been made to discover what are the inhibitors to attendance. For instance, it may be the case that the dates on which CAA holds its meetings has more impact on attendance than fees (for instance), which, judging by the feedback in recent AGMs are a crucial factor for some sections of the membership. CAA needs to discover when the best time to hold its meetings is: weekdays near the Easter holidays may be totally wrong. A simple questionnaire should be the first simple step to resolving this issue.

CAA should actively encourage more museums, government offices and field units to attend. Timing is only one of the obstacles which inhibits more participation from these professional areas. CAA should lay out what benefits they will accrue from membership.

Why rely on formal papers? This form of information transfer is very ritualised and probably not very effective. More emphasis should be placed on posters, demonstrations, workshops and special interest groups (SIGs), for example.

CAA is not doing nearly enough to encourage younger people, especially students, to bring their energy, skills and insights to bear on CAA's special interests. There is a danger that grey-beards will start to preponderate, the shiny dome will become *de rigueur* and CAA will become a marginal interest. If CAA is not seen to offer students something worthwhile and concrete, why should they bother to get involved?

There should be student representation on the CAA Steering Committee to articulate the views, aspirations and particular needs of students, which established members with financial security perhaps fail to recognise. CAA should lend material support to their professional development through, for example, special sessions, workshops and mentoring. Equally, CAA should make it easier for students to attend. This is not simply a matter of giving special student discounts for membership and registration. It is essential that more effort is put into securing affordable accommodation for students who wish to attend CAA meetings. CAA should also consider offering special group packages to institutions who have courses combining information technology, mathematics and archaeology.

CAA should actively encourage local lay populations to attend CAA venues. There are two good reasons for so doing. One is to promote the work of the association to a wider audience and to educate people about its validity and worth. The second is to increase the potential revenue from each meeting through larger numbers of registration fees, but also from sponsors wishing to promote themselves locally. At the Japanese equivalent of CAA, held in Saga City, Kyushu, many hundreds of local people attended the meeting to hear and see how the latest technologies and methods were revealing new facets of their ancient culture. Extracts and summaries of the meeting were also reported in local and national newspapers, radio and television stations.

The fields of graphics, animation and visualisation are personal interests of the author. These disciplines have the potential to reach very wide audiences through television

and video. CAA should emulate other specialist meetings, such as Imagina, Eurographics and SIGGRAPH, which regularly have film theatres, where audiences can see the latest work, without having to endure endless repetition about methodology. All technical advances involved in a film are explained in short presentations in the academic sessions, in much the same way as workers take time to explain the finer points or innovations embodied in a demonstration or exhibit.

Publicity is a problem requiring immediate treatment. In the past, all matters relating to the organisation and publicity of CAA meetings were in practice wholly controlled by the local organisers, who were effectively underwriting the meeting. CAA has no policy or guidelines, and has not nurtured consistently high standards relating to publicity. The mainstay of CAA publicity has been its mailing list, which has grown in an *ad hoc* fashion over the years. Moreover, the content, design and production of announcements and any other associated flyers or posters, distributed through sometimes intermittent mailings, has, to say the least, been variable.

CAA requires a Publicity Officer with a small budget to be responsible for the design of flyers etc. The duties of this officer should also include the development of good relations with, and promoting the association through, the media and TV. The CAA publicity officer should actively seek sponsorship from local businesses and the civic authorities.

CAA should be more proactive in encouraging technical excellence. A simple measure which can be implemented easily is the recognition of outstanding work through awards. Token prizes should be given in at least two categories: one category being the *best contribution by a newcomer*, the other being *best overall contribution*. The criteria by which contributions are to be judged should be publicised, and the adjudication panel should be selected and identified at each meeting. It is important that the prizes are not awarded on the basis of the *best paper* as this gives an unfair advantage to professional presenters in the educational arena.

It was not mentioned earlier that CAA has indulged in a couple of mild flirtations with other specialist groups. This dates back to 1988 when CAA had a brief liaison with The Multivariate Study Group of the Royal Statistical Society. Later, in 1992, overtures were made to the Institute of Field Archaeology (IFA) and resulted in CAA members organising a session at IFA's annual conference.

What of other potential collaborations? CAA is one of several (international) organisations which vies for the attentions of workers in computer-based archaeological activities. Many people cannot afford to attend more than one meeting. In order to widen the appeal and to influence larger audiences, CAA should set up a working party to look into the advantages or otherwise of holding joint meetings with other organisations with similar, if not identical, interests, and perhaps different audiences. The two most obvious candidates to consider are the World Archaeological Congress (WAC) Special Interest Group in Information Technology and Communication in Archaeology (SIG ITCA), and the UISPP (Commission IV).

However, there are several other organisations that should be investigated further (e.g. the Archaeometry symposia, Deutsches Gesellschaft für Klassifikation, and perhaps even the Theoretical Archaeology Group).

In summary, CAA has a long and rich history, embodying many people and a broad spectrum of views and expertise. CAA should not be regarded as an elitist, academic organisation. It is open to all interested parties. If it adopts a creative approach to promote this outlook, it can look forward to being a high-flier in the world of cultural history.

Bibliography

- ANDRESEN, J., T. MADSEN & I. SCOLLAR (eds) 1993. *Computing the past: Computer Applications and Quantitative Methods in Archaeology CAA92*, Aarhus University Press.
- BLAKE, V. 1990. "CAA89 — Computer Applications and Quantitative Methods in Archaeology" *Archeologia e Calcolatori*, 1: 305–307.
- LOCK, G. R. 1985. "Review of the 1985 Computer Applications in Archaeology conference", *Archaeological Computing Newsletter* 3: 13–15.
- LOCK, G. 1988. "CAA88 — a review" *Archaeological Computing Newsletter* 17: 8–14.
- LOCK, G. & J. MOFFETT (eds) with J. CASTLEFORD, N. FIELLER, C. ORTON, P. REILLY & N. RYAN 1992. *Computer Applications and Quantitative Methods in Archaeology 1991*, BAR International Series S577, Tempvs Reparatum, Oxford.
- LOCKYEAR, K. & S. RAHTZ (eds) with C. ORTON, P. REILLY, G. LOCK, J. RICHARDS & N. RYAN 1991. *Computer Applications and Quantitative Methods in Archaeology 1990*, BAR International Series 565, Tempvs Reparatum, Oxford.
- MADSEN, T. 1992. "Set og Sket", *KARK Nyhedsbrev* 17: 4–6.
- MARTINEZ, V. M. 1991. "Aplicaciones Informaticas en la Arqueologia Espanola: un panorama del primer congreso" *Complutum* 1: 19–30.
- MOFFETT, J. 1992. "CAA92: a review and thoughts on the future of CAA conferences" *Archaeological Computing Newsletter* 31: 1–5.
- RAHTZ, S. P. Q. (ed.) 1988 *Computer and Quantitative Methods in Archaeology 1988*, British Archaeological Reports International Series 446, Oxford
- RAHTZ, S. & J. RICHARDS (eds) 1989. *Computer Applications and Quantitative Methods in Archaeology 1989*, British Archaeological Reports International Series 548, Oxford.
- REILLY, P. 1988 "Computer Applications in Archaeology 1988" *Archaeological Computing Newsletter* 15: 1–3.
- RUGGLES, C. L. N. & S. P. Q. RAHTZ (eds) 1988. *Computer and Quantitative Methods in Archaeology 1987*, British Archaeological Reports International Series 393, Oxford.
- WILCOCK, J. D. (ed.) 1973 "Computer applications in archaeology 1 The Proceedings of the First Annual Conference on Computer Applications in Archaeology", *Science and Archaeology* 9: 3–31.

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