

**DE  
BA**

# DEVON EARTH BUILDING ASSOCIATION



*Reconstructed cob gatehouse  
at Bury Barton, Lapford.*

Newsletter

**ONE**

## INTRODUCTION

This is the first DEBA Newsletter; it is proposed to produce one twice a year. For some time the issue of a formal membership for DEBA has been under discussion as at present it is a loosely constituted organisation with a Working Group of self-appointed members and a wider membership who at present only benefit from invitations to meetings held annually. Nobody pays a subscription and DEBA survives on grants, the free services of enthusiasts and funding raised by occasional seminars. This system has the advantage that nothing is expected of DEBA beyond what it does at present, but has the downside that it is not possible to "belong" to DEBA as such, which deprives the Association of the chance to recruit from and liaise with a wider public, and in turn from obtaining funding through their regular subscriptions. But a formal membership would impose a considerable burden on the Association, in that it would then need to find the usual officers to service the membership with an additional imposition on their already busy lives which this would necessarily involve. A member would reasonably expect to receive something back in return for his or her subscription in the way of events and publications; at present there is no obligation in this respect.

Some feel that there is not sufficient support in Devon (and the rest of the U.K.) to warrant a formal membership and that the Association would collapse under its demands; its present loose formation best serves current needs. Others believe that a membership would be a better foundation for the growth of interest and knowledge in earth building in the County. Indeed other regions have such organisations and we perhaps need to look at these to see if their arrangements might be appropriate here. In the meantime, it was felt that a Newsletter would help partly to bridge the gap between the Working Group and the wider world and anybody's thoughts on this subject would be heartily welcomed by DEBA and indeed could be published in the next edition of the Newsletter in six months time. As can be seen from the contributions below, the earth building field in Devon is burgeoning. Five years ago repairing cob with cob was a seven-day wonder but now is almost commonplace, and new building cob is a serious item on the Building Regulation Agenda and University courses, not simply a subject for idle discussion in the pub. Obviously DEBA must adapt to fit these changing perspectives; we should be very pleased for guidance as to the route we need to follow.

**Peter Child**

County Environment Department.

Devon County Council,

Lucombe House,

County Hall,

Topsham Road,

EXETER EX2 4QW

## EMERGENCY REPAIRS TO COB BUILDINGS

Since its inception in early 1991 DEBA has always seen its primary role as a conservation body, providing advice and guidance on how best to repair and maintain the existing stock of earth buildings. The problem of urgent repair to cob buildings in cases where structural failure occurs in winter or where limited access and other difficulties such as danger to the public arise, is one that needs to be addressed.

A discussion paper dealing with these issues has, therefore, been produced and circulated to Working Group members for their comments. It is now being revised and will be presented to the Wider Group meeting in October. The introductory paragraphs of the paper are reproduced below and it is thought that discussion of the issues involved, based upon case studies and the experiences of DEBA members, could usefully form the theme of the forthcoming Wider Group meeting.

1. Serious failures in cob buildings may occur in the winter, often following periods of prolonged heavy rain, or at other times of the year in cases where, for example, proximity to public roads means that repairs have to be carried out as quickly as possible in the interests of public safety or when road closures are necessary. A major collapse of, for example, a gable wall, which occurs during November or December will need to be repaired with all speed. Normally, if the building is occupied, there can be no question of waiting until spring, when weather conditions become suitable for re-building in mass cob.
2. It should be noted also that failures of this nature will usually result in an insurance claim, and that negotiations with insurance companies can often be difficult and protracted. So that, even if a collapse occurs during the summer months, a period of up to two months may elapse before work can start on site. Adequate propping, shoring and weather protection of the remaining structure is therefore, of paramount importance.
3. Almost invariably, masonry repairs are specified in these cases, often involving quite large-scale demolition and removal of sound salvageable material. Not only is the historical and structural integrity of the building irreversibly damaged, but it may also be put at further risk because of the incompatibility, in a technical and physical sense, of the materials used in the repair.
4. It has long been considered impractical to use raw earth for the repair of cob buildings, especially in the cold and damp conditions that usually prevail during the winter months. However, recent experience of carrying out major repairs using preformed cob blocks would seem to suggest that the problems normally associated with wet-placed cob, with its slow drying out and subsequent shrinkage, can now be largely overcome.

Larry Keefe

## BUILDERS' COB REPAIR COURSE

The first training course tailored specifically to meet the needs of builders and craftsmen has been run by Plymouth University School of Architecture, between May and July this year.

The part-time course was of 12 weeks duration, providing a total of around 80 hours instruction, approximately one-third of which was theory (classroom and laboratory work) with the remainder either looking at repairs in practice or participating in 'hands-on' practical repair work.

DEBA members played a significant role in designing and delivering this 'pilot' course, which it is hoped will ultimately receive formal accreditation as an NVQ Level III (National Vocational Qualification). Although a course of this relatively short duration cannot hope to provide comprehensive training in all aspects of cob repair and construction, it has been successful in providing a sound basic grounding in the subject and given those who attended it much greater confidence in handling the material.

The course, which has been favourably received by the local building industry and was partly funded by the Rural development Commission and the C.I.T.B., will be run again, on a two week full-time basis, at Bickton College of Agriculture from Monday 11th of September.

Larry Keefe



### **PLYMOUTH SCHOOL OF ARCHITECTURE**

#### **CARE AND REPAIR OF COB BUILDINGS**

Science of earth in building, fault diagnosis; practical repair and maintenance techniques; renders and finishes. An intensive two week block course particularly for builders located in East Devon and can be residential.

**INFORMATION FROM JAYNE RICHARDS**

**01752 233630 / 3600 FAX: 01752 233634**

## Forthcoming DEBA Technical Leaflet on Cob and the Building Regulations

This document is currently in course of preparation by Tony Ley, Building Control Manager for North Devon D.C. assisted by Mervyn Widgery and Richard Alford of Mid Devon D.C. Building Control Department.

The leaflet will deal with the use of cob in both existing and new buildings in relation to the requirements set out in the Building Regulations, the relevant sections of which are:

Regulation 7	Materials
Part A	Structural Stability
Part B	Fire Resistance
Part C	Dampness/Radon Protection
Part E	Sound Insulation
Part J	Heat Producing Appliances
Part L	Conservation of Fuel and Power

Particular attention will be given to procedures for relaxation and appeals.

Issue of the final draft for conservation purposes is delayed mainly on account of a lack of definitive data relating to the combustibility of cob and to some uncertainty concerning the provisions of the recently revised Part 'L' and how they should be applied to earth structures. In the meantime the authors would be pleased to answer any technical queries on Building Regulation issues.

# DEBA Wider Group Meeting

## Friday 27th OCTOBER

### FORDE HOUSE

### NEWTON ABBOT

## Cob Repair will be a major theme

## Details available from

## Peter Child

## CEA RESEARCH UPDATED

On 22 May representatives from six centres met in CRATerre's new premises at Maison Levrat, Villefontaine to establish a European Earthen Architecture Research Network. At the meeting Hugo Houben and Hubert Guillard represented the Grenoble School of Architecture; Ali Mesbah from ENTPE, Lyon; Mikael Westermarck, Helsinki University of Technology; Horst Schroeder, Weimar School of Architecture; and Carlo Aymerick, Institute of Architecture, Cagliari, Sardinia. I was there to represent CEA, University of Plymouth. To be invited to join such a group was an important milestone in CEA's research activity, because it means that we have been recognised as part of the European network.

Whilst the immediate benefit of the new network was an application to the European commission for financial support from the Training and Mobility of research fund, there are many more significant opportunities. In particular the network means there will be an easy exchange of research knowledge and support across Europe. This is very important in the United Kingdom as our research appears to be about ten years behind the other centres.

The group agreed upon two general objectives:

1. To ensure the significance of earthen architecture is accepted and that there is good practice throughout Europe.
2. To produce readily available reliable information on all aspects for all those concerned with cultural continuity and involved in conservation, revival of tradition, evolution and the future of earthen architecture.

Each centre was given a specific task and that of CEA is to produce European repair standards. An enormous task, particularly if Hugo's estimate of at least ten million existing earth buildings is correct, complete with regional design and construction variations and a wide range of soil types. However, working collaboratively on both a National and European scale hopefully supported by millions of ecus we should be well on the way by the end of the Century.

During the month of July we prepared an application for EC Leonardo funding to establish a training programme across Europe. Unfortunately, this time by EMail, so we missed out on another visit to Hugo's wonderful mud mansion overlooking a lake and superb countryside.

During the last twelve months progress has continued on registered research projects funded by the University of Plymouth. Matthew Greer is soon to complete his doctorate on the composite behaviour of cob. Hopefully he will publish an abstract from this substantial study, which will help us to better understand the performance of the material. Maggie Ford is now testing the pilot she has developed for the creation of an earthen inventory on the parish of Crediton. We have incorporated all that current technology can provide, although being aware that if the same methodology is applied by others across the region they may not necessarily have at their disposal systems like the G.I.S. (Geographical Information

Survey).

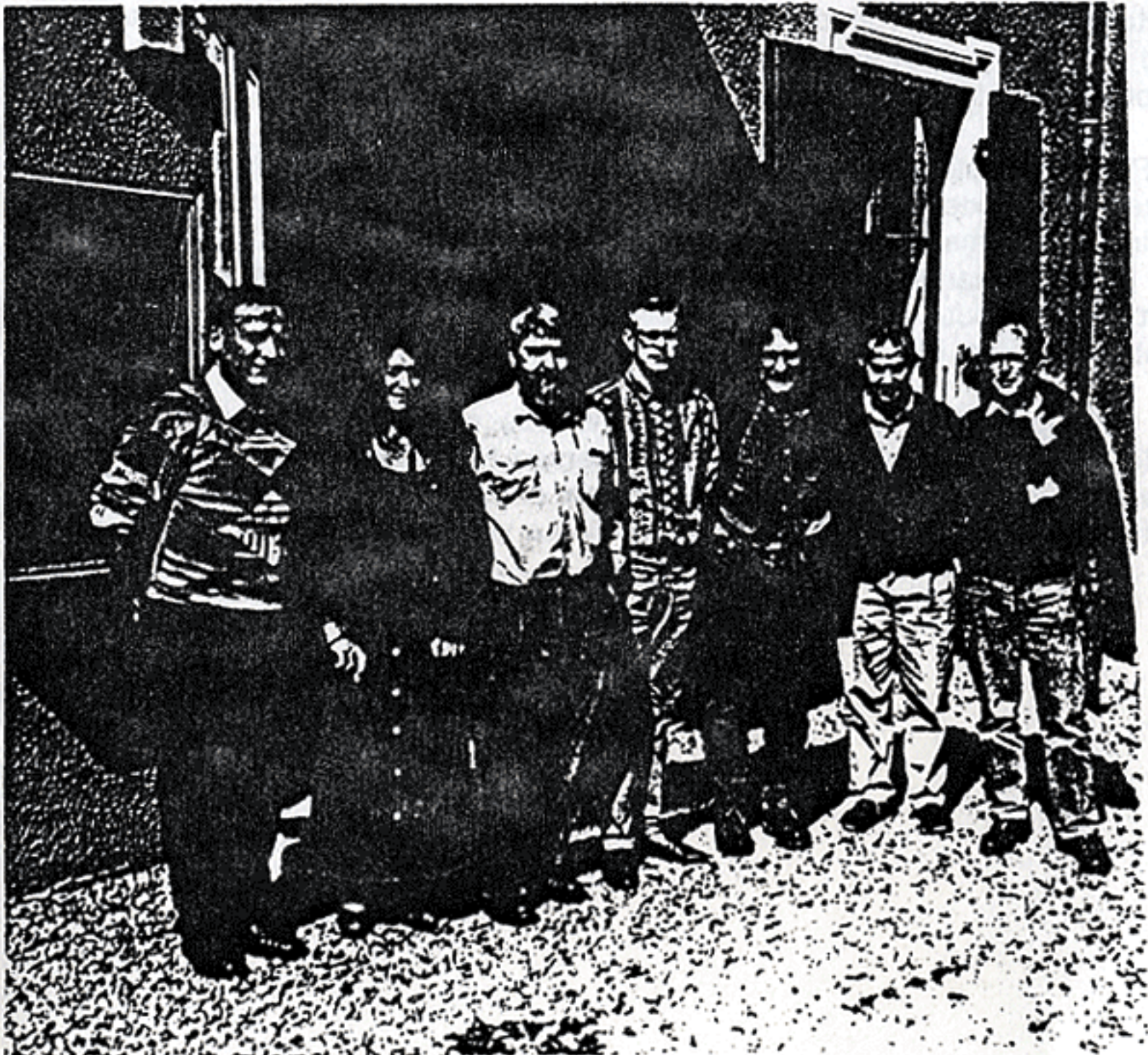
Working in tandem with Maggie is Kathryn Coventry who is looking at the engineering properties of soils from the same study area, to both understand the existing building stock and appropriate conservation techniques and explore opportunities for new buildings.

With two years still to work on this project, I imagine this team will produce a fascinating study. The thermal performance of cob buildings is not yet easy to quantify, so we hope that Steve Goodhew's research on thermal modelling of cob buildings will give the information required to reassure the Building Inspectors.

Dave Clarke has recently joined the research group and will be looking at finishes particularly in relation to Cullacot.

More information from the research team has been published in the recent 'Out of Earth II' conference papers on sale from the University.

Linda Watson  
Coordinator, Centre for Earthen Architecture



## Devon County Show Centenary 18, 19, 20 May 1995

The Devon Earth Building Association has now participated at the Devon County Show at Westpoint, Exeter for the past two consecutive years. The theme of conservation at this year's Centenary Show was particularly appropriate to the activities of DEBA. Devon has more cob buildings than any other county in Britain, many of which have suffered through neglect or inappropriate methods of repair. The Show therefore provided a valuable opportunity for DEBA to hold a public exhibition demonstrating and providing advice on the proper maintenance and conservation of cob buildings. Fund raising was also possible through the sale of technical leaflets.

Exceptional weather this year attracted considerable numbers of visitors and helped generate a particular interest in the static display and the erection and repair of a temporary cob wall. Preparatory work prior to the show had enabled the partial completion of a four feet high L-shaped wall. This featured an authentic vertical crack in its corner, typical of so many surviving cob buildings. Throughout the course of the show a practical demonstration of both mass cob walling and the manufacture of cob tiles and blocks (trodden into moulds and sun dried) was undertaken. Work was supervised by Mr K McCabe who carefully carried out the repair of the cob wall, the two sections of which were stitched together using pre-manufactured cob tiles bedded in a lime/sand mortar. Part of the wall was later rendered with lime plaster and with the assistance of the Devon Rural Skills Trust was covered with a thatched coping!

Historic Property Restoration (English Heritage) and the University of Plymouth both contributed to an extensive exhibition of photographic and other display material housed in DEBA's marquee. This featured principally contemporary examples of national and international earth building, recent research undertaken by the University of Plymouth, and students' design proposals for a new cob building project at Cullompton, Mid Devon.

DEBA's participation at the Centenary Show was an event which was both enjoyable and highly successful. Whilst it served to educate and raise public awareness of a mostly forgotten traditional low energy method of construction, notable interest was expressed in DEBA including a visit by the Duke of Edinburgh himself!

T Peat.



## RECENT AND CURRENT COB REPAIR AND BUILDING PROJECTS

October 1994 saw the completion of structural repairs to farm buildings at Bury Barton, Lapford, an historically important farmstead located within the boundaries of a scheduled ancient monument of Roman origin. The works received substantial grant aid from English Heritage, who were concerned that the cob walls should be repaired and re-built using appropriate materials and methods in order to maintain the structural and historical integrity of the buildings.

Locally available sub-soils posed a particular problem as they were composed largely of fines (silts and clay) with very little sand and gravel. Although this deficiency was partly corrected by the addition of coarse sand, the new cob remained subject to moderately severe shrinkage and settlement. Some composite repairs were carried out, with vertical oak posts set into mass cob; shuttered cob was used in inaccessible areas, and extensive use made of cob blocks and bricks.

On the whole the repairs were very successful, and a great deal was learned about how to cope with the very expansive silty clay soils that frequently occur in areas overlying the culm measures geological formation.

Major structural repairs are currently in progress at Cullacot near Launceston, a late mediaeval manor house, originally constructed largely of cob. Again, these works are being carried out with very substantial grant aid from English Heritage. Altogether the mixing and placing of about 30 tonnes of cob, mainly mass walling, but also cob blocks and bricks, is involved, including the reconstruction of a former rear lean-to. It is hoped to complete the bulk of the cob work by the end of this summer, allowing it to dry out for several months prior to the application of finishes next year.

Information has been received concerning major cob repairs at Bratton Clovelly - builder Jeremy Sharpe; Bickleigh, in the Exe Valley - architect David Randall, builder Eaton Construction; Vennbridge Farm, Starcross - surveyors Messrs Straton Creber, builder K. Gaydon; and at Bow - engineer Barry Honeysett.

A new cob dormer style (1 1/2 storey) bungalow, which will be roofed with thatch, is currently under construction at Throwleigh near Okehampton. It is being built by the owner with the assistance of Mathew Vincent, formerly a D.R.S.T. sponsored apprentice with Alf Howard.

Larry Keefe

## CONFERENCE SKETCH

Summer started on 3 May this year and as delegates gathered for 'Out of Earth II' at Dartington, the sun came out to join us. Once again the Plymouth Centre for Earthen Architecture did a fine job, an excellent venue, and a challenging timetable awaited us.

Day one began with Hugo Houben, taking us through global earth building with his usual energy. Peter Child then discussed cob buildings in Devon and the first session was closed by Maggie, Rex and Linda explaining their approach to the development of an inventory for the study of earth buildings. After tea came three very interesting papers with an Eastern European flavour, with a new friend Zuzana Syrova speaking on earth villages in Moravia, Ivana Zabrickova discussing the rebuilding of earth structures in the Czech Republic and finally a beautifully balanced double act from Miklos Cseri and Miklos Buras telling us about developments in earthen buildings at the Hungarian Open Air Museum. It was a concentrated afternoon and jetlag was apparent, especially after our delicious dinner after which delegates gratefully disappeared to their rooms never to reappear until morning.

Day two the schedule was so full that Linda had employed a small but efficient group of whippers in to steer us from breakfast to the conference room in time for the 9:15 start. Jeanne-Marie Teutonico was first off with an excellent explanation of laboratory analysis and interpretation. The major part of the morning session was taken up with three technical papers, all from the CEA with Kathryn Coventry and Bob Saxton dealing with engineering performance, Matthew Greer and David Short discussing aspects of the composite behaviour of cob and Steve Goodhew and Dick Griffiths dealing with thermal performance. These were followed by David Webb presenting a fascinating piece on soil stabilisation, Peter Trotman discussing moisture and closing with Geralt Nash speaking on the use of earth in Welsh buildings.

The afternoon session discussed faults and failures in earth buildings and led to lively and interesting presentations. Larry Keefe discussed common faults and failures in cob, Jonathan Rhind proposed a methodology for repair, Anthony Ley gave us a valuable and interesting look at cob and buildings regulations. Barry Honeysset examined structural failure in cob and John Hurd explained new techniques in the repair of delamination of earth walls. Gordon Pearson discussed repair techniques in the Test Valley and the day ended with a fascinating examination of mud and stick panels and daubs in Norfolk.

The exhausted delegates crawled out of the hot hall, John Hurd and Dirk Bouwens puffing away like crazy to compensate for a nicotine free afternoon, but everyone looking forward to dinner and the by now infamous barn dance. Forewarned by last years fandango we enjoyed an energetic evening and even shy retiring types like Fernando Pinto joined in. It must be said that our three man Scottish contingent barn dance like professionals, and it's clear that they all do this on a regular basis. Last year the barn dance was like the Grand National, but this year there were no fallers and we got away without serious injury. New friendships were made, old friends re-united and after the dance delegates got together over several bottles of Hungarian wine for a social that lasted until the wee small hours.

Day three delegates seemed to eat their prunes as a matter of necessity rather than enjoyment and it was a matter of some congratulation that we all arrived in the lecture theatre at 9:15. Bruce Walker kicked off with a description of the black house and Paul Richold followed with a case study of the Church House Inn at Stockeinteignhead. Our third speaker pleasingly our first from Ireland was Dick Oram introducing us to earth buildings in Ulster and this was followed with a report on the Cottown School House in Perthshire by Chris McGregor. Ray Harrison reported on Bowhill and Michael Wingate and Dirk Bouwens produced papers on earth buildings in Norfolk. The morning session was completed with a lively and fascinating presentation on conservation practice in France by Miriam Olivier.

After a delicious lunch, piling on as much Devonshire cream as we could while we still had the chance, the afternoon session began with an explanation of the Gaia project from Jeanne-Marie Teutonico, John Hurd explained the workings of the Earth Structures Committee and Linda Watson brought us up to date with the activities of the CEA. The final paper was from Fernando Pinto introducing the Portuguese training initiative SERPA.

Our final chairman Paul Oliver, editor of the Encyclopaedia of Vernacular Architecture of the World chaired a question and answer session, and the conference was closed with a vote of thanks to Linda Watson and her colleagues who had yet again excelled themselves.

Next year we are giving Linda a rest and organising a conference in partnership with the University of Dundee and Historic Scotland, barn dancing every night I expect, and so we had better get in training now!

**John Hurd**  
Chairman, ICOMOS(UK) Earth Structures Committee



A. Two pamphlets available published by Devon Historic Buildings Trust.

**THE COB BUILDINGS OF DEVON 1**  
History, Building Methods and Conservation.

**THE COB BUILDINGS OF DEVON 2**  
Repair and Maintenance by Larry Keefe

£1 in total including post and packaging.

B. Appropriate Plasters, Renders and Finishes for Cob and Random Stone Walls in Devon by Devon Earth Building Association.

£1 including post and packaging from:

Centre for Earthen Architecture, University of Plymouth, School of Architecture, Hoe Centre, Notte Street, PLYMOUTH PL1 2AR. Tel: 0752 233630 Fax: 0752 233634

