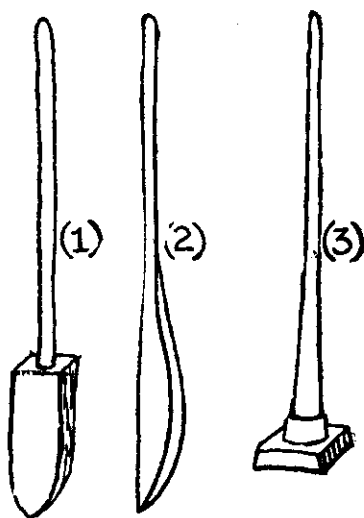


MORE ABOUT EARTH HOUSES

THE purpose of the previous article was not to instruct tyros in the processes of pisé, but to try to create a vigorous public interest that might develop a public opinion to bring pressure to bear in high places for the purpose of reducing costs and improving housing, while conserving the valuable and very limited natural resources of the country, including labour.

About 30 years ago I set out on a £1,400 experiment involving all the family savings, plus a government loan, and many weeks of toil and sweat to prove to myself, and the public at large, the virtues and possibilities of pisé in modern building. When the building was occupied, the editor of a provincial daily called, and was shown "the works." The resultant half-column caused a small



RAMMERS—Numbers 1 and 2 are chisel-pointed, the body of the rammer being of square section in each case. Number 3 is an iron-headed rammer for finishing flat surfaces where these are required

avalanche of enquiries. Only one correspondent offered a fee, or a stamped envelope. This one (an architect who could appreciate the value of such information) eventually sent five guineas.

Now that I have told how that experiment has confirmed my faith in this "old-new" building material, another avalanche has started. Only two stamped envelopes, and no offers of fees, have arrived in what may be called my "fan mail." However, such are the perils of publicity (somewhat akin to "the uses of adversity").

The nett cost of the information (which readers are about to get for threepence, of which a small fraction comes to me) was £500.

I am still researching with a view to complete mechanisation.

Research takes time and money. All I am able to give at present is time. If my work can be completed before I pass on, the result will be given to the nation through the Government on conditions that will prevent monopolistic exploitation and consequent high cost. In the

LAST month "The Listener" published an article on the use of earth—particularly in the form known as pisé-de-terre—for housebuilding. That article was intended simply to draw attention to a neglected material, but so many readers wanted more information that we asked our contributor, R. AMMER, to prepare a second paper, dealing more particularly with the technical problems of pisé construction. Copyright in the text and illustrations on this page is reserved to the author.

meantime I ask readers to remember that it takes time and money to answer correspondents.

Architects Who Sneer

One correspondent refers to the sneering attitude of some architects towards pisé. Being in the profession, I can understand it.

The one who sneers, perhaps, fears the effect of its general use on his business, if he is more concerned in making money than in providing good homes for the people. Another, through comparative ignorance of the subject, would naturally fear to use it in case it should fail, as happened with an architect a short time before my experiment started. His failure did not deter me, nor did the remarks of some of my friends, two "cob" builders among them, who could not understand how earth could be made to hold together without being made into mud. They said my walls would not stand two years. If I live to 200 years I will expect to see them still there but under another roof.

I wrote to the architect, whose earth building venture had been disastrous, to discover, if possible, the cause of failure. No reply came; he probably was too peeved at his failure to discuss it. He need not have met disaster if he had done a little more research before going on with the job. I mention this as a warning to novices to spare no pains in discovering the qualities of the soil they intend to use, and, to protect the material, and the completed courses in the walls, from weather until the whole has been waterproofed. You have heard of the great artist who, when asked by a too voluble admirer, "How do you mix your colours?" replied "With brains, madam!" Well, that goes for building pisé houses. Brains are more important than brawn, but a fair amount of the latter is required, at least till the process is completely mechanised. The successful mechanisation of pisé construction will mean the saving of millions of feet of timber, and thousands of tons of coal, as well as other valuable material.

Soil Tests Necessary

Now, to the modus operandi.

Test the soil before plans are prepared, because until the strength is known the wall thickness cannot be known. Then, unless you know a lot about building, get an architect to prepare plans, or if you design your own have them checked by a competent structural engineer. If the soil is not of uniform quality mix it to get it as uniform as possible. Screen it as fine as possible, within reason, because the finer it is the stronger, and smoother, the finished product will be.

Make blocks at least 15 inches square, then divide into nine equal test blocks with a saw (rip). Keep a record of all your operations; the fineness of soil, weather, weight of rammer, number of

blows to a given volume of loose soil, the volume of soil used to produce a given size of pisé block, kind and amount of water-proofing, in fact every circumstance connected with the operation. Weigh the blocks when made, at time of test, and again three months later, that is three times.

The maximum strength will not be reached in many cases till at least a month after the blocks are made. Make a reasonable number of blocks, so that fair average may be obtained when testing. Experiment with the moisture content, which must be kept as near the minimum as consistent with common-sense. Pisé building is not a job for one with a poor sense of values. If you have not learned the art in the course of making the test blocks try again, or employ one who has learned.

Have the tests made by a competent person, preferably a P.W.D. officer, or the D.S.I.R. Keep duplicate check blocks, numbered for reference.

Most soils are suitable, others may be made so by an admixture of clay. Clayey soil may be improved by adding sand. Again use your brains.

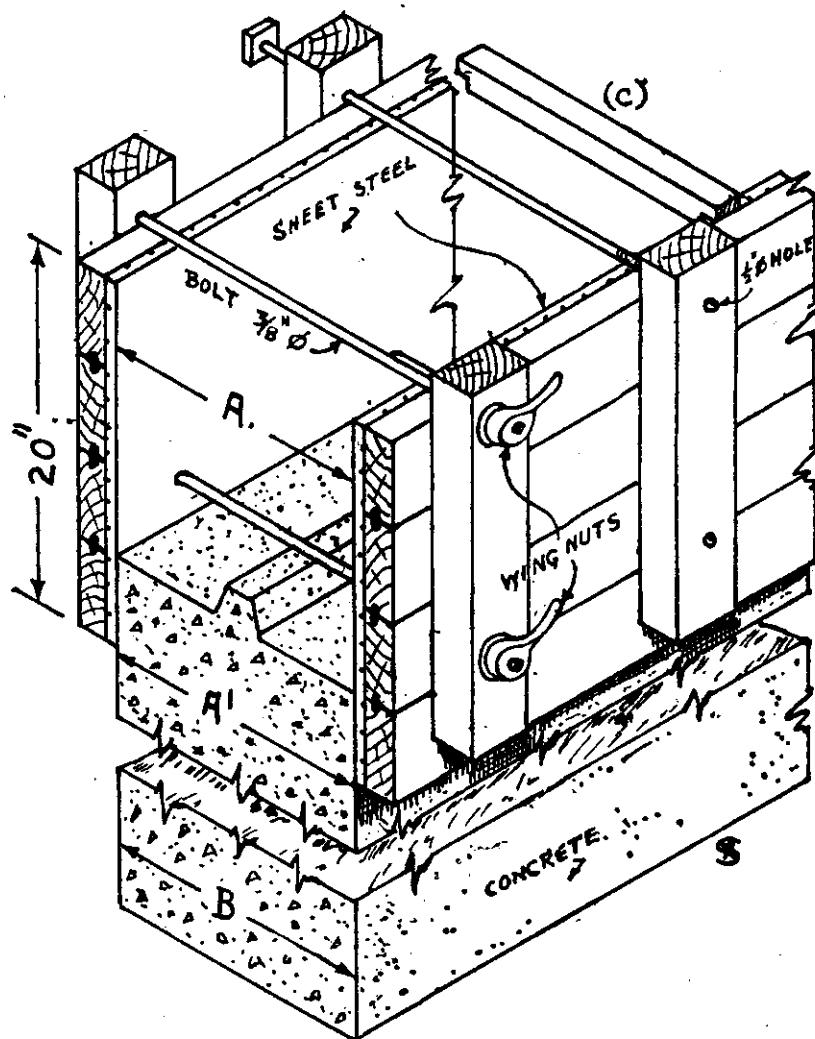
Do not use a heavy rammer. Many light blows are better than fewer heavy ones. Put no more than two or three inches of loose soil in the form at once, and ram till it gives a kind of ringing sound, which you can only learn by experience. The approximate number of blows of a 4lb. rammer required to make 1½ cubic foot of loose soil into one foot of pisé is 1,600, varying according to nature of soil and vigour of the workman. Like concrete mixing by hand, the technique of ramming cannot be taught, it must be learned by doing the job. Next ram the forms first with the rammer marked (2) in illustration, then do the rest with the one marked (1). Number (3) is more suited to finishing flat surfaces as at sills and on the top course.

The isometric diagram showing forms set on the concrete foundation should be self-explanatory to those capable of building a satisfactory pisé house. This article is not intended for others.

Beware of Floods

Don't attempt to build on an area that has even a remote chance of being flooded to floor level.

The central tongue, or ridge of concrete, shown on diagram is to resist any (continued on next page)



ISOMETRIC DIAGRAM, showing forms set for first course of pisé