

**Burnt Clay or Surkhi as Pozzolana.** By C. A. R. Khan and Lal C. Verman. (*Bulletin No. 24 of Indian Industrial Research.*) (Manager of Publications, Delhi), 1941. Pp. 53. Price Rs. 1-6 or 2sh.

Pozzolanas are materials which easily react with fat lime at ordinary temperatures to form cementitious products in the presence of water or water vapour. Though Portland cement to-day forms the bulk of the cementing materials used in the building trade, surkhi and similar pozzolanas still hold their own both in this country and abroad in many fields of application when a really good hydraulic mortar is required. There are many factors besides the firing temperature which influence the quality of a pozzolana mortar, such as the chemical composition of the original clays, time of maturing, grain size distribution, etc. Khan and Verman have carried out a comprehensive investigation on these properties and their correlations starting with surkhis prepared from clays found in the vicinity of Calcutta. Thus it is found, among others, that high magnesium lime gives stronger mortars than high calcium lime, while increase in iron and aluminium content appears to reduce the tensile strength. Over-burnt surkhi is superior by 25 per cent. and underburnt surkhi is inferior by 14 per cent. on the average to well-burnt surkhi, at long periods of maturing.

A rather strange empirical relationship has been drawn between the tensile strength  $S$  (lbs. per sq. inch.), and the time of maturing  $T$  (days); this is designed as a "log-log relationship" but expressed as  $S = K \log_e \log_e a T$ , where "K is a constant denoting the slope of the straight portions of curves and  $a$  is a constant determining the position of the curves"!

M. A. G. RAU.

### The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets.

The third edition of this well-known and widely circulated Health Bulletin No. 23, issued under the authority of the Nutrition Research Laboratories of Coonoor, has recently been published. The Bulletin has the merit of reminding a starving nation that milk and fruits and pulses and fats, enrich the diet and balance its composition. The planning of a satisfactory diet is one of economics and as the Bulletin points out,

it is difficult, in fact impossible, to supply a really satisfactory diet for a nation whose average income is crushingly low. Has the country been producing a sufficient quantity of the vitaminic and protective foods to render them available to the poorest citizen of the country? The agricultural economy of the country should, in the first instance, be directed to keep the nation well fed.

It is pertinent to recall what Sir John Orr has recently pronounced in this connection: "The right of every individual to the means of attaining his full inherited capacity for health and physical fitness, should rank equal with his right to religious and political freedom. In actual fact, children born of poor parents in poor districts are of poorer physique, suffer more from disease and have a lower expectation of life than children born of well-to-do parents. There is evidence to warrant the assumption that inadequate diet is the main cause of this grave social injustice. If we are going to plan for human welfare, we should begin with a food policy based on nutritional needs. This would do more to promote health and happiness, and alleviate the worst effects of poverty, than any other measure. If every family knew that, under any circumstances, they would have sufficient of the right kind of food to give their children full opportunity for the enjoyment of a healthy life, the worst fear of want would be eliminated.

"A food policy based on human needs would involve a great increase in agricultural production. It is estimated that, to bring the diet of the United States up to the standard for health, there would need to be an increase in the consumption of the five most important health foods by the following amounts: butter 15 per cent., milk 20, eggs 35, fruit 70, vegetables 100. Even larger increases are needed in most other countries. The need for increased production would bring prosperity to agriculture. For many years ahead, there would be no fear of any slump in agriculture due to over-production of food."

President Roosevelt has proclaimed "freedom from want" as one of fundamental freedoms of man. May we not hope that the termination of the present conflict will also witness a termination of the appalling conditions of starvation which are so acute in this unfortunate country.