

provided much new information as to the general laws and relations which determine the nature and properties of alloys. Dr. E. A. Rudge, who is forty years of age, graduated B.Sc. (London) with first class honours in chemistry in 1915, and thereafter was engaged as an analytical chemist first at Messrs. Johnson and Sons, at their smelting works, and then as an analytical and research chemist in the Osram Robertson Lamp Works. Since 1930, Dr. Rudge has made a special study of the uses and behaviour of timbers in South Wales industries, and of the causes and circumstances of decay in industrial timbers, and he has now in the press "The Decay of Wood in Relation to Humification", and "Wood Decay and Coal Formation".

Palaeolithic Pottery

NOTWITHSTANDING the number of claims for the discovery of pottery of palaeolithic age made hitherto, none has been substantiated. Such claims, owing to defects in the evidence, have usually had to be rejected or at best to be held 'not proven'. It would indeed be remarkable, if palaeolithic man really had been a potter, that among the very numerous relics of his cultural activities which have survived, there should be no trace of his pottery. There are, however, certain fragments recently discovered in East Anglia and the Lower Thames Valley, for which the evidence for a palaeolithic origin is unusually well attested. The fragments in question were discovered in stratified deposits at Ipswich and at Swanscombe, and they were associated in both localities with flint implements which are regarded by Mr. J. Reid Moir and Mr. J. P. T. Burchell as of Upper Palaeolithic type. A description of six of the fragments of pottery and of the conditions of their discovery are given by Messrs. Moir and Burchell in *Man* of November. The floor from which they were obtained lies at a depth of about twelve feet beneath three distinct strata in Ingress Vale; but deposits of about ten feet depth had been removed before the site was first visited, so that the possibility of intrusion, though unlikely, is not entirely eliminated. One of the fragments obtained is ornamented and certain authorities, it is said, have adjudged it thereby to be of Bronze (Beaker) Age date. Mr. Stuart Piggott, writing in the same issue of *Man*, while hesitating, on account of the size of the sherd, to be more precise in his verdict than "prehistoric", thinks that the Bronze Age beaker is suggested as the immediate parallel among the prehistoric wares of Britain. An influential committee, including among others Prof. P. H. G. Boswell, Mr. M. C. Burkitt, Mr. A. S. Kennard, Dr. L. S. B. Leakey, Dr. K. S. Sandford, and Mr. Reginald Smith, as well as Mr. Reid Moir, is to examine and report on the deposits and their contents.

Respiration of Fruits

In his Friday evening discourse on November 9 at the Royal Institution, Dr. Franklin Kidd discussed the respiration of fruits. The lecture opened with a number of demonstrations illustrating the way in

which oxygen enters fruits and carbon dioxide escapes from them in the process of respiration. Failure of the mechanism for the escape of carbon dioxide is considered as the possible cause of bitter pit, a disease which is responsible for great losses to orchardists. The changes in respiratory activity throughout the life of a typical fruit such as the apple were then described and corresponding changes in chemical constitution of the fruit considered. The conclusion arrived at is that the primary sugar which forms the basis of respiratory oxidations is the active or gamma form of fructose. Attention was then given to the sudden rise in respiratory activity which occurs at maturity and upon which ripening depends. This change, called the climacteric, probably occurs when the acidity of the fruit falls to a certain point, and can be delayed by keeping the fruit in the presence of carbon dioxide. Oxygen is also necessary for the change. After the climacteric, the fruits begin to produce odours, and if these are not allowed to escape freely, fruits become injured. The injuries due to this cause are responsible for the large amount of wastage in fruit storage. The recent discovery that ripening fruits produce a toxic substance which is probably ethylene was discussed. Unripe fruits exposed to the vapour of ripe fruits are stimulated to begin ripening at once. The intermediate stages in the oxidation of sugars in respiration were discussed. In the absence of oxygen the climacteric change which initiates ripening does not occur. The storage life of fruits can be lengthened by treatments which reduce their respiratory activity, such, for example, as certain manurial treatments in the orchard and the storage of fruit in atmospheres rich in carbon dioxide and poor in oxygen.

A Famous Dutch Pumping Engine

IN a paper read to the Newcomen Society on October 17 by Eng.-Lieut. J. J. Bootsgezel, late of the Dutch Navy, an account was given of the pumping engines erected about ninety years ago for draining the Haarlemmermeer, or "The Meer", a tract of flooded land stretching from Haarlem and Amsterdam to Leyden. The task of draining this area was entrusted to the two Dutch engineers A. Lipkens (1782-1847) and G. Simons (1802-68). Three large pumping stations were erected and in them were installed Cornish pumping engines made in Cornwall. The three stations were named after three individuals associated with the draining of the Meer: J. A. Leeghwater, F. G. van Lijnden and N. Cruquius. The engines were put into commission in 1848, and on July 1, 1852, the *State Gazette* announced: "The Meer is dry." The area drained was more than 44,000 acres. Two of the engines have been dismantled, but through the action of the Koninklijk Instituut van Ingenieurs, the Cruquius engine, which last worked on June 10, 1933, has been put in a state of preservation, and the boiler house will be maintained as a museum. Lieut. Bootsgezel was able to give many interesting particulars of the engines. The main features of the Cruquius engine included a single vertical high-pressure cylinder of 7 ft. diameter within a low-pressure cylinder of 12 ft. diameter.