

if they prove to be unsatisfactory; the material and labour may have to be carried out in the open air with material and labour of varying quality; the conditions of excavation and foundation cannot be entirely foreseen until the ground is opened up; the execution of the works also may result in damage to property belonging to other persons. In addition, the completion of the work may extend over several years, and the employer may desire to use the completed parts of the work before the final completion of the whole.

It was formerly the custom to prohibit assignment and to allow subletting only when the previous permission of the engineer had been obtained. Recently it has become fairly common to provide a form to be attached to and filled up with the tender, upon which the contractor declares the names of the firms to which he desires to sub-let portions of the works, and if these firms are approved before the contract is sealed the contractor may straightway sublet work to these firms. The retention in the hands of the engineer of supreme power as sole arbitrator has, considering the terms and circumstances of present-day contracts, become rather an anachronism. Old forms change slowly and some of the reforms suggested are not quite satisfactory. In Mr. Rimmer's opinion, some phrases and clauses now accepted as standard practice are confusing and ambiguous. The basic conditions upon which standard conditions should be framed must first be decided by the parties concerned. If the persons have different views, they are sometimes determined on the basis of compromise. But if the conditions are to be clear and unambiguous, there is no room for compromise on the manner and phraseology on which these principles are to be stated.

Changing the Face of London

In his Friday evening discourse at the Royal Institution delivered on February 3, Sir Charles Bressey dealt with the question of "Bigger London or Better London?" He illustrated by lantern slides the growth of Greater London since the Great Fire and described the complex administration of the area, now that its population has reached $9\frac{1}{2}$ millions, equivalent to the entire population of Norway and Sweden. In twelve years time the population within a thirty-mile radius of Charing Cross may reach a 'peak' figure of $10\frac{3}{4}$ millions. Meanwhile growth continues with such alarming rapidity that the inadequacy of British road communications has necessitated the preparation of the Highway Development Survey published by the Minister of Transport last May. Its recommendations, looking thirty years ahead, include the construction of about 123 miles of new routes in the L.C.C. area, 368 miles outside the L.C.C. area (exclusive of motorways) and motorways to a total length of 307 miles. The total cost will lie between £160,000,000 and £230,000,000. Sir Charles stressed the urgent need for a new east-west route across London (the east-west connexion), for the completion of the South Circular Road, the formation of a loopway around the City, and the

extension of the Thames Embankment so as to form a continuous riverside promenade extending for eight miles from Putney Bridge to the Tower of London. The incessant congestion of London's main roads in time of peace was some inkling of what might happen if a hurried evacuation had to be undertaken. If the Government decides that the present time is not propitious for the undertaking of extensive works of road construction, nothing can justify the postponement of measures for safeguarding the course of new routes, which include tunnels adapted for use as part of London's air-raid defence schemes.

Sir Arthur Evans: Gifts to the Ashmolean Museum

SIR ARTHUR EVANS has presented to the Ashmolean Museum, Oxford, of which he was keeper for a period of twenty-five years ending in 1908, his unique collection of Minoan sealstones and gems, gold rings and jewels, as an accession to the recently rearranged 'Minoan Room'. The collection, as is recalled by the Oxford correspondent of *The Times* of February 2, is "far-famed and unrivalled", embracing every period and class of the Minoan gem-cutter's art—prisms, button-seals, cylinders and ring bezels in steatite, cornelian, ivory and other materials, engraved with pictographs, scenes of ritual, bull-fighting and other sports. Among the rings is the famous great gold ring of Nestor, the group of gold beads known as the 'Treasure of Thisbe, all engraved with scenes of ritual, combat and ancient legend. Since Sir Arthur began his archaeological explorations in Crete in the early nineties of the last century, both while he was keeper of the Museum and after, he has been liberal in contributing to its collections examples of the objects discovered by him in his excavations. With this latest gift, the Ashmolean collection of Minoan antiquities becomes the most important and the most complete outside Crete itself. Recent alterations of the Museum, in which the largest archaeological gallery has been divided into three sections, have made it possible for Sir Arthur, with the assistance of Miss Mercy Money-Coutts, to make a new installation of Cretan antiquities, in which the older collections have been supplemented by groups of casts, numerous photographs, diagrams and water-colour drawings, with figurines, smaller antiquities and pottery which he has transferred to the Museum from his private cabinets. His benefactions have not, however, been confined to the donation of antiquities from Crete. They include classical antiquities, large series of Greek, Roman and Anglo-Saxon coins, and other objects, as well as the great collections of stone and bronze implements, Anglo-Saxon jewellery and other material which belonged to his father, the late Sir John Evans.

Morbid Heredity in Isolated Communities

AN interesting study of morbid heredity in man in an isolated community by Dr. J. W. McFeeters, for which the Sir Charles Hastings Clinical Prize for 1937 has been awarded (*Brit. Med. J.*, Feb. 4, p. 218), is made the basis of a suggestion that in view of the facilities for tracing family pedigrees in small isolated communities and the inbreeding imposed upon such

communities for generations, similar studies should be undertaken, distributed as widely as possible over the country, before improved communications break down this isolation. The present observations appear to bear out the author's contention that such a series of records is bound to throw light on the occurrence of rare recessive characters, which are much less likely to occur when random mating is the rule rather than the exception. The village here under study consisted of about fifteen hundred inhabitants. Observations of numerous morbid data extended over a period of years, and led to the conclusion that heredity plays an even more important part in many varied conditions than is generally recognized. Of the many conditions studied, eight were chosen for discussion—hereditary cerebellar ataxia, progressive muscular dystrophy, the lymphatic diathesis, otitis media, hernia, cancer of the bowel, rodent ulcer and hydramnios. Among the more significant points which emerge, it is noted that in progressive muscular dystrophy, the condition is definitely sex-linked. It is transmitted by apparently healthy females in three generations. In three cases it was associated with failure to bleed, a peculiarity not previously recorded in this connexion. The incidence of hernia is curiously restricted. Out of twenty cases, fifteen occurred in two families; and heredity evidently played a part even more important than strain. The possibility of the occurrence of a zygotic lethal factor in the male—a possibility suggested with some doubt by Ruggles Gates—receives support from the study of hydramnios, where there may be a relationship of the cases on the paternal, and not the maternal side.

Natural and Synthetic Fibres: Sisal and Flax

INTERESTING information on the development of natural and synthetic fibre industries is published in the *Journal of the Royal Society of Arts* (87, No. 4494). Discussing sisal and flax production in East Africa, Dr. W. H. Gibson maintains that the sisal industry is now well established in Kenya, binder twine and string being at present the chief uses for the fibre. Sisal is also finding a ready market for matting and upholstery filling, and tests regarding rope manufacture are giving satisfactory results. The flax industry in Kenya, on the other hand, has so far been less successful, due largely to the difficulties encountered in the process of retting, that is, the preliminary steeping process during which the fibres are loosened from the woody stem. Experiments recently carried out in the United Kingdom, however, have shown that it is possible to eliminate this process and extract the fibre from the natural flax, and with this discovery the way for the development of the industry in Kenya and other suitable parts of the Empire seems most promising.

THE modern counterpart of these vegetable fibres, namely, the synthetic textiles, are the subject of a paper by Dr. E. F. Armstrong. Artificial silk produced from wood pulp and its more recent development, staple fibre, are well-known supplements to, and competitors with, natural silk, wool and cotton. A new textile called 'Nylon' has, however, recently

been produced by the du Pont Laboratories in the United States. This thread is of an entirely different origin to rayon, as it is a plastic substance derived ultimately from coal tar, with dyeing properties akin to natural silk or wool, and it appears to have a most promising future. Two other types of fibre may be mentioned. The first is 'Lanital', an Italian product made from casein and used as a wool substitute, but as it lacks wet strength, attempts are being made to produce a better product from the protein of the soya bean. The second is spun glass which, though unsuitable for clothing, is used for electrical insulation, gas and liquid filtration and decorative purposes. In spite of the popularity of synthetic textiles, it is noteworthy that in 1937 the world production of these fibres was only in the ratio of 1.8 to 28 of natural spinning materials.

Forestry in Finland in 1937

THE annual report of forestry activities in Finland (XVII Metsätalasto Forststatistik—Kertomus Metsähallinnon Toiminnasta 5, 1937. Berättelse över Forstförvaltningens Verksamhet, Ar 1937), published in Helsinki last year, sums up the work of this progressive Forest Department. The great advance made by Finland since the Great War and the position she has taken in European forestry circles may to some extent be attributed to the fact that the Forest Department had a large forest capital at its back already under exploitation. Consequently a variety of problems were presented to the trained forester, from forestry education through sylvicultural management and protection down to the study of utilization, the improvements possible in extraction, statistics and prices, and so forth. The forestry reforms of 1921–23 prescribed the division of the country into four districts containing ten forest inspections and ninety cantonments (subdivisions of an inspection). Each district was administered by a local forestry bureau, under whom were the inspections, each in charge of an inspector. An important outcome of a decree of July 1934 is the gradual replacement of the untrained forest guards by *chefs de travail* or overseers, all of whom will have received training at one of the forestry schools, of which there are six. Considerable progress has been made with working plans and maps required in connexion with their preparation—revision of these plans is undertaken every ten years. The report deals in detail with the commercial activities, since the forests play so important a part in Finnish economy, and the British market is a very valuable one. An interesting point in the report is the policy undertaken by Government of settling a proportion of the population within the large forest areas owned by the State.

The Phenological Survey

THE new phenological forms distributed by the Royal Meteorological Society to its six-hundred-odd observers for 1939 have a further reconstruction of selected specimens of fauna and flora on a much more scientific basis. A noticeable feature is a considerable increase in the number of Lepidoptera selected for special observation, there being fifty selected