

of the Sibley College of Engineering. When he took charge the total attendances in all classes was about 60; at his death in 1903 the attendances were about 960. The teaching staff had grown from 7 to 43. Besides his work as a teacher, writer and experimentalist, Thurston served on various committees and was a member of numerous societies both at home and abroad. The gathering at Ithaca on October 25 will pay tribute to his memory, and will also discuss ways in which engineering may meet the crucial challenge of our rapidly changing world.

A National Atlas of Great Britain

THE report of the committee appointed by the British Association in 1938 to prepare a scheme for a projected National Atlas of Great Britain and Northern Ireland was presented to the Association at the Dundee meeting and contains provisional details of the format and contents of such an atlas. "The proposed atlas," the report runs, "aims at a strictly objective and scientific presentation of the natural conditions, natural resources and economic development of the land (and adjacent seas), of the history and pre-history of the country, and of the distributions, occupations, movement and social conditions of the population." To this very comprehensive programme the proviso must be added "in so far as they provide suitable material for cartographic exposition", since it is not intended that there shall be any accompanying text to the maps. Such a work necessarily involves the collaboration of scientific workers in very different fields, and six sections of the Association were represented on the reporting committee, which sat under the chairmanship of Prof. E. G. R. Taylor (Section E).

THE complete Atlas will be in two large folio volumes, each volume containing 60-70 plates. The number of maps will, of course, be many times greater than the number of plates, but the sheet size has been selected so as to show the whole of England and Wales at a single opening on the scale of one to a million, a scale which experience has shown to be appropriate for many types of general map. The maps are grouped under four general headings: physical geography, bio-geography, industry and commerce, and human geography. Under physical geography are included cartography, orography, geology (with geomorphology), climatology and hydrography. Under bio-geography the sub-headings are soil, vegetation, distribution of species, pre-history (of plants), land utilization, forestry and agriculture. Many of the maps will be of types not hitherto constructed, or at least not hitherto published for Great Britain. Such, for example, are maps dealing with health and disease, recreation and amenities, which fall within the human geography section, and maps of accessibility from and to the leading cities, in the section devoted to industry and commerce. For certain sections and sub-sections, the contents of individual maps are indicated in the report, the object being to ensure constructive criticism and co-operation from workers engaged in particular

fields of research. As the report states, the success of the enterprise "must depend on scientific workers and scientific bodies willing to undertake responsibility for the accuracy of maps within particular fields".

Contemporaries of the Mammoth

IN an article contributed to "Russia To-day Press Service" (Sept. 12, 1939) Prof. P. Kaptelev gives an account of his experiments with organisms contained in frozen soil from Siberia. A paper by Prof. Kaptelev on his discoveries was read before the Academy of Sciences of the U.S.S.R. during 1936 (see NATURE, 138, 714; 1936). The flora associated with the mammoth has been known for years from the contents of the food canal of frozen individuals, but it is astounding to learn that plants and animals contemporary with the mammoth have been brought to life after remaining in a state of suspended animation which at a low computation must have extended over twenty thousand years. The soil from which the organisms were obtained consisted of silt strata obtained in the galleries of mines in the taiga of Siberia at a depth of 131½ feet, far within the limit of the permanently frozen soil, for even in the hottest summer the thaw never penetrates deeper than seven to ten feet. In contemporary strata the explorers found the bones of mammoths, the woolly rhinoceros, bison, and musk-ox, indicating a period contemporary with the interglacial period which came between the last two Ice Ages (Riss-Würm period) or with the last Ice Age (Würm period). The soil samples were placed in sterilized containers in a sterilized atmosphere, and they eventually yielded living organisms which included several kinds of soil bacteria, including a distinctive nitrogen bacterium, fungi and water plants, the majority being closely related to present-day forms. From another sample of later geological date, taken at a depth of 14 feet, twenty different kinds of water-plants, mosses, filaments of fungi and a crustacean (entomostracan) were obtained, and placed in favourable laboratory conditions these organisms began to multiply rapidly. But this stratum is reckoned to have been only from one to three thousand years old!

Archæological Excavations in Northern Syria

MR. M. E. L. MALLOWAN'S account of his further excavations in Northern Syria in the report of the British School of Archæology in Iraq (Gertrude Bell Memorial) for the year ended June 30, 1939, again records a striking frequency in the occurrence of amulets of various kinds among the finds—a feature to which attention was directed in earlier reports. The report on Mr. Mallowan's work covers the fifth expedition to Northern Syria and the third consecutive season's excavations at Brak, one of the largest of the mounds in this part of Syria. The great mud-brick temple, which Mr. Mallowan has named "The Temple of a Thousand Eyes" on account of the enormous number of alabaster "eye idols" found in the foundations of the platform on which the temple is built, has so far produced the most

important discoveries of the expedition. Its dimensions are approximately 30 yards by 25 yards; and its walls are exceptionally heavy, the outer walls being more than eight feet thick. They are buttressed with rough blocks of limestone and basalt. The temple dates from about 3000 B.C. and is thus the oldest shrine yet discovered in eastern Syria. Its architectural relationship to archaic temples at Warka, about eight hundred miles down the Euphrates from Brak, points to cultural contacts between north-east Syria and Sumer at this early date. A striking feature of the plan of the temple is a central shrine, three times as long as it is wide, with a pedestal for the presiding god against the end wall.

THE adornment of the temple would appear to have been remarkable. A magnificent frieze consisted of three separate panels on the three faces of the pedestal in the sanctuary. Each of these was three feet in length and eight inches in breadth, and was composed of outer bands of heavy gold foil encasing blue limestone, white marble, and green corrugated shale. The panels were fastened to a wooden background with copper holdfasts, while the gold borders were held down by gold-headed nails with silver stems. No panels of this kind have previously been discovered. One of them has been allocated to the British Museum. Fragments of fluted copper panelling, which had adorned the walls, have been discovered; while on the south side the wall was embellished with a mosaic of clay cones painted in bright colours, and surmounted by large stone rosettes with alternate petals of white marble and dark green shale and a central corolla of red limestone. In the material of the mud-brick platform on which the temple stood, many thousands of objects were found. These include many beautifully carved amulets—models of lions, rams, bears, monkeys and vultures in serpentine and bone. A number of human heads in alabaster are said to be landmarks in the history of sculpture. A summary of the report appeared in *The Times* of October 14.

Juvenile Delinquency

IN a discussion on juvenile delinquency before the Royal Statistical Society on April 18 which has now appeared (*J. Roy. Statist. Soc.*, 102, 384; 1939), Dr. Rhodes concludes that juvenile crime appears to be part of a major problem, including adult crime, which involves social and economic considerations. More exact information regarding the age-constitution of local populations is required to gauge properly the differences between the incidence of juvenile crime in different parts of the country. In considering changes with time, we must take account of changing environment if we are to deduce anything from the facts of recorded crime regarding changes in the naughtiness of the juvenile population. Mr. C. P. Hill agreed that juvenile delinquency was linked both with density of population and with unemployment, but considered there were so many other unknown variables to be taken into account that no accurate forecast was possible as to the probable future course

of juvenile delinquency from the data available. Mr. J. H. Bagot, from Liverpool experience, stressed the wastage in probation and education offices and police departments through the non-use of statistics, and concluded that the vast proportion of the delinquents were drawn from one section of the population, and, within that section, from a defective group, either from the point of view of family or overcrowding.

Alcohol and Crime

IN an important paper on the problem of alcohol and drug addiction in relation to crime, published in the October issue of the *British Journal of Inebriety*, Dr. W. Norwood East, formerly H.M. Commissioner of Prisons, discusses the relation of parental alcoholism and drug addiction to crime, alcoholism in the individual as a cause of crime, the medical and legal aspects of alcoholic crime, and the treatment of criminal alcoholics and drug addicts. He illustrates the insignificant part played by drug addiction as a cause of crime, at least in Great Britain, by the fact that in 1937, when the number of drug addicts known to the central authority was only 620, not more than 31 persons were dealt with under the Probation of Offenders Act, or fined or imprisoned for offences against the Dangerous Drugs Act. Dr. East further points out that while every practical criminologist will attach some importance to the association of alcoholism and crime, it is easy to over-emphasize the connexion, and in support of this contention brings forward statistics from various prisons showing that familial or individual alcoholism is a much less frequent cause of crime than was formerly supposed. While allowing that the general medical treatment of alcoholism and drug addiction may be supplemented by psychotherapy in suitable cases, Dr. East asserts that this method is apt to be disappointing, and that he does not know of any impressive series of figures illustrating the success of such treatment.

Future of Welding

IT is now known that the substitution of fabrication for casting is very advantageous to heavy-machine makers in a number of ways, mainly because it obviates the necessity of pattern-making. The time that would otherwise be lost in the foundry is considerable, especially when new patterns have to be evolved. In a leader on welding in the *Electrical Review* of September 29, it is stated that many electrical and allied manufacturers are now using welding on a fairly large scale. Some of them go so far as to design and make their own welding equipment. There are on a conservative estimate about forty manufacturers of electric welding machines in Great Britain and there are nearly as many suppliers of rectifiers for welding and thermionic valve control devices. Besides, there are one or two factories which make holding frames for rotating or otherwise manipulating the welding work being done. It is probable that not more than about a quarter of the known applications of welding are utilized in industry. The large amount of research being done is shown