

the *neter*-pole and the *ded*-column, both of which were originally coniferous tree-trunks, must have been of Syrian origin. The traditional home of Isis and Osiris was between Byblos and Damascus, and there the vine and wheat and barley grew wild. The Egyptian house was obviously derived from a wood-built dwelling, and both Egypt and Babylon are known to have drawn their timber from the Lebanon area.

Mr. R. Campbell Thompson, in a paper on "Pre-historic Dwellers in Mesopotamia," maintained that a proto-Hamitic section of the Mediterranean race which migrated at an early time into Arabia was the forerunner of the Semitic peoples.

Mr. S. Casson described the recent excavations at Mycenæ of the British School of Archæology at Athens, which had been carried out in the light of a reconsideration of Schliemann's discoveries. The Grave Circle, as well as a stratified platform of earth outside the Acropolis, the site of a part of Mycenæ in the period 2000-1500 B.C., showed traces of a Bronze-age civilisation, and even of Neolithic remains. It seemed certain that there was a continuous mainland civilisation stretching back at least to the beginning of the second millennium B.C. In the replanning of Mycenæ by the later kings, such as Atreus, by whom the Lion Gate and the Acropolis wall were built, the burial-ground of their forerunners was enclosed by the Grave Circle. This was used as an ossuary, outlying graves being cleared and their contents placed within the circle.

Mr. Joseph S. S. Whitaker's paper on "Recent Anthropological Research at Motya" described the remains brought to light on the Island of San Pantaleo, on the north-west coast of Sicily, which is undoubtedly the site of the ancient Phœnician colony of Motya, and, owing to its complete and sudden overthrow in 397 B.C., probably shows more remains of an old Phœnician town than any other known site. Excavation has revealed that the island was originally fortified by a wall all round, and the north and south gateways have been discovered. The north gate consists of an outer gateway formed of two apertures, recalling the Athenian Dipylon Gate, and a second, twenty-two metres behind it, of six apertures in pairs. In a cemetery—the first to be discovered—the prevailing method of disposal of the dead was incineration, although in the later cemetery on the adjacent mainland inhumation was chiefly practised. One burial-place belonging to the last period contained only the remains of animals, mostly ruminants, in single urns. An interesting mosaic pavement showed a combination of Phœnician picture-panels and Greek decorative borders.

Signor G. Bagnani dealt with the results of recent archæological investigations in Rome, some of which had not hitherto been described, including the Roman basilica at Porta Maggiore, the tomb on the Via Ostiense, and the tombs found under the Church of San Sebastiano.

Dr. T. Ashby, in a joint communication by himself and Mr. Robert Gardner, described further observations of the Roman roads of Central and Southern Italy, in particular of the Via Valeria, through the Abruzzi, the Via Latina, and the Via Cassia, through Etruria. An attempt to trace the Via Herculia between Venusia and Potentia was unsuccessful.

Mr. G. H. Garfitt's paper on a recent discovery of rock sculptures near a stone circle in Derbyshire described cup- and ring-markings and two sculptured stones found near the circle on Eyam Moor. On the latter are represented a deer-horn pick and a plough. A comparison with dolmenic sculptures in Brittany suggests an association with the Ægean goddess of fertility, whose cult may thus have extended to Derbyshire. Mr. MacRitchie brought forward evidence to

show that early references to Greenland must be taken to denote some European country, probably the area between West Sweden and the Urals, and indicated the bearing of this conclusion on European ethnology. Mr. Kidner described certain round barrows in the New Forest which do not conform to the three standard types; and Mr. Willoughby Gardner described his recent excavations in the Dinorben hill-fort near Abergele, which had fully confirmed previous conclusions as to the character and construction of the fort.

An afternoon session was devoted to an expedition to the site of the Roman city of Venta Silurum at Caerwent under the guidance of Dr. T. Ashby, who was in charge of the excavations carried out with the assistance of the Association on that site some years ago. As a preliminary to the excursion Dr. Ashby also gave the Section an account of the results of these excavations.

E. N. F.

### Smoke Abatement and Housing Schemes.

A SUPPLEMENT to the *Lancet* of November 20 contains the annual report of the Advisory Council on Atmospheric Pollution for the year April, 1919-April, 1920. The number of stations sending in full returns is nineteen, of which fifteen are divided between London and Glasgow, the other four being Malvern, Rothamsted, Southport, and St. Helens.

It will be seen that the number for the whole country is very limited, and some of the dirtiest industrial centres, where a comparison of the conditions of the atmosphere from year to year might be of some advantage to the local authorities, are entirely unrepresented. This arises, no doubt, partly from the complete indifference shown in many localities to the smoke nuisance, and partly from the troublesome and tedious analytical method of estimating atmospheric impurities. Something in the way of an automatic recorder or an apparatus not requiring much supervision would probably induce many places which at present send in no returns to adopt the system.

It should be pointed out that the Council fully recognises this desideratum, and the report shows that a considerable amount of research has already been carried out with no little success in simplifying the apparatus for recording both solid and acid impurities. That the prevalence of the latter impurity is the main factor in the disintegration of the stonework of many of our ancient monuments has been proved beyond question, and some check on the quantity is a matter of great importance.

It is to be presumed that it is no part of the Council's business to advance the cause of smoke abatement apart from the registration of statistics, yet it seems to us that a systematic propaganda against smoke pollution might form a useful adjunct to its other activities.

Under the new housing schemes emanating from the Ministry of Health an opportunity is offered for the erection of houses in such a way as to diminish considerably the output of smoke, and, in fact, under the auspices of the Ministry a Committee was summoned to inquire into and report on the subject. The report of this Committee was issued some months ago, but it appears from a statement made in the House of Lords by Lord Newton, chairman of the Committee, that neither the Department for which it was prepared, nor the local authorities for the benefit of which it was issued, appear to have paid any attention to its practical application.

We would suggest, therefore, that the various

schemes referred to in the report, and generally approved by competent persons, should be taken up by the Advisory Council on Atmospheric Pollution, who should bring it before the notice of the public in the form of active propaganda. It seems useless to make yearly records of air pollution when no serious steps are being taken, publicly or privately, to diminish the evil.

J. B. C.

### Work of the Analytical Laboratory, Cairo.

SEVERAL features of more than passing interest are shown in the undermentioned report.<sup>1</sup> Covering as it does the period of the war, it chronicles work—such as the making of special incendiary bombs and chemical igniters for flares—which is rather unusual for the analytical laboratory, but is an indication of versatility in time of need. Passing, however, to more normal activities, with a bare mention of the excellent routine work done, it is interesting to note that research has taken a definite place in the programme of the department; the authorities are evidently alive to the importance of encouraging the application of chemistry to arts and manufactures. Thus an investigation of Egyptian crude petroleum has been made, the results of which have proved that good yields of Diesel fuel-oil can be obtained from this source, besides the customary petroleum spirit and kerosene, and a pitch which will be invaluable for road-making. A Government refinery to deal with this crude petroleum is to be erected at Suez.

An inquiry into the possibility of cement manufacture in the Sudan was also undertaken. As a result a cement factory is now being constructed at Makwar, where 50,000 tons of cement per annum will be made; the fuel difficulty has been overcome by using a mixture of locally made charcoal and imported coke.

Among the chemico-legal cases dealt with was an interesting one in which a claim was made against the Government for land valued at about 16,000,000*l.* Unfortunately for the claimant, however, it was found that out of the 168 documents on which the claim was based no fewer than 163 were forged.

It is noted that an entirely new method of assaying gold has been devised, whereby the Assay Office was enabled to cope with a very considerable increase of work resulting from the new assay law, which provides for the compulsory hall-marking of gold and silver. The report indicates useful work and steady progress.

### The Problem of Soaring Flight.<sup>2</sup>

THE source of energy used by birds in soaring flight is not yet clearly known. Attempts have been made to achieve this form of flight artificially, and, according to Gustav Lilienthal, a flight of 500 metres up wind, in which a height of 40 metres was attained, has been made by a man-carrying glider not provided with a motor, but having wings constructed on the pattern of those of a soaring bird.

The extraordinary regularity with which cranes, when flying in a group, keep their distances from one another affords a proof that such soaring flight is either due to undiscovered wing-movements or to some condition of the air which is widely and uniformly distributed. The observation that certain dragon-flies, and also flying-fishes, employ soaring

flight has led to discoveries that throw a new light on the subject. Dragon-flies can adjust their abdomens and hind-legs, and flying-fishes their pelvic fins, in such a way that these organs act as a brake to check speed when flying. The brake is used in certain conditions in continued flight to keep their speed at a required minimum. This use of an air-brake yields a proof that these instances of soaring flight are not due to undiscovered wing-movements. Dragon-flies habitually avoid ascending currents when in soaring flight so long as the sun is shining. If isolated clouds are crossing the sky these insects collect in the neighbourhood of a convenient ascending current, entering it whenever the sun is obscured, and gliding beyond its range so soon as the sun comes out. That soaring flight is not due to the lifting effect of lateral gusts is proved by the fact that the flying-fish when at highest speed carries its wings inclined so that the wing-tips are on a lower level than the body. In this case, if lateral gusts were operative, their only effect would be to drive the fish under water.

Certain facts suggest that turbulent motion is, in some unknown way, the source of the energy of soaring flight. But light objects, such as feathers or aerial seeds, may be seen floating in the air in the neighbourhood of soaring birds, and exhibiting only slow and equable movement. What form of turbulent motion can be imagined that enables a bird weighing 10 lb. or more to glide without effort to a height of 2000 metres or to travel horizontally for indefinite distances at a speed of 50 miles an hour, and yet is unable to disturb the course of a piece of thistle-down? Thus the facts of the case appear to offer insuperable difficulties to all theories that have hitherto been put forward as an explanation of soaring flight.

### University and Educational Intelligence.

CAMBRIDGE.—The proposal to admit women to membership of the University on equal terms with men was rejected on December 8 by 904 votes to 712. The next step, presumably, will be a vote on Report B, the alternative proposal offered by the recent syndicate. This is, in effect, a suggestion on the part of the University that it would welcome the foundation of a separate University for women at Cambridge, and would extend to it the same facilities for educational purposes as are at present offered to the members of Girton and Newnham Colleges. This proposal does not in any way meet the greater number of the difficulties that were raised in connection with the rejected scheme, in particular the question of numbers and accommodation. It has already been rejected by the women's colleges, which have declared that they have no intention of taking action in the matter of forming a separate University even if Report B is passed. Already three of the six signatories of Report B have, in a sense, abandoned it for some scheme which shall more nearly meet the women's needs, a scheme the details of which have yet to be worked out. It does not look as though the adoption or rejection of Report B by the University will bring the problem nearer to an agreed settlement. In the interests of the University as a whole, and of the women's colleges in particular, an early settlement must be reached, and it looks as though the next move must lie with "the party of thirteen," who have in view a scheme which will give the women the full privileges of membership of the University without any control over the men's education. If they take early and effective action they may be able to justify

<sup>1</sup> "Report on the Work of the Government Analytical Laboratory and Assay Office, 1913-1919." (Ministry of Finance, Egypt.)  
<sup>2</sup> Abstract of a paper by Dr. E. H. Hankin and F. Handley Page read before the Cambridge Philosophical Society on November 22.