including a glass jug (Roman) and a large earthenware pot. Other finds have been made—chariot harness and gear, a slave charm and implements. It is thought that the position, occupying about 25 acres on the top of a hill, being a natural strong point, may have been held as a camp up to the time the Romans occupied the valley where Canterbury now stands. Cuttings have been made on the north side and have brought to light a ditch filled with rubble, broken earthenware and vegetable matter. The excavators have also found a rampart and a black occupational level which contains much broken pottery. More pottery was found in a cess-pit, but a cooking pit, flint-lined, serving a group of wattle and daub huts, contained little pottery. Excavations have also been begun on the south side, whence most of the previous material has come.

Control of the Bed-bug

THE Ministry of Health has recently issued two brochures dealing with the bed-bug, its habits and methods of eradication. While this insect is not known to be actually concerned with the transmission of the pathogenic organisms of any specific disease, its presence in large numbers is a menace to humanity. The insect is perhaps responsible for ill-health from lack of sleep due to skin irritation, and its presence accentuates the already insanitary conditions under which it thrives. During recent years, the problem of its eradication has come more and more into prominence in connexion with slum clearance and other schemes. A large number of tenants of 'council houses' come from verminous dwellings, and the need for ensuring that the new houses are not similarly infested from the outset is a matter of concern to the local authorities. A report of the Committee on the Eradication of Bed-bugs has recently been issued (Reports on Public Health and Medical Subjects. No. 72. 1934. 46 pp. H.M. Stationery Office, 1*s*. 0*d*. net). This Committee, under the chairmanship of Dr. G. W. Monier-Williams, has, in its report, summarised the present position and indicated the lines along which future work on bed-bug control might be profitably undertaken. The life-history of the insect is discussed, and various methods of control are dealt with. In view of the lack of accurate information as to the bionomics and habits of the insect, various lines are emphasised along which research requires to be carried out. The report is accompanied by two well-executed coloured plates, illustrating various phases in the life of the insect, together with an excellent annotated bibliography.

THE second brochure issued by the Ministry of Health on this subject (Memo. 180 Med.) is entitled "Memorandum on the Bed-bug and how to deal with it". It is intended for official use and has been prepared with the view of assisting sanitary officers and others in dealing with bed-bugs. It outlines the biology of the insect, gives instructions where to seek the insects, and cites the chief means of prevention and the best methods of extermination. For fuller information on the subject the report, already mentioned, should be referred to. The memorandum is accompanied by the same coloured plates as are appended to the report. We welcome the appearance of these two publications since they supply, in non-technical language, accurate and up-to-date information on a long-standing problem. Its full solution is dependent upon research carried out along the lines indicated, and much remains to be done. Relatively little is known, for example, of the effects of climatic conditions on the breeding of the insect, or as to the extent to which it can survive on the blood of other animals in the absence of human beings. There is, also, much yet to be discovered with regard to the differential action of insecticides on the insect and its eggs. The effects of heavy infestation of bed-bugs on the general health of the people are still not properly understood, and there is real need for definitely ascertaining whether, under certain conditions, bed-bugs may prove to be the carriers of disease germs.

A New Skymeter

IN these days when many of our great cities are involved in so much rebuilding, the question of light easements of adjoining property frequently gives rise to the necessity for financial settlements or building restrictions involving a definite assessment of rights of light existing. Speaking generally, the law recognises that light enjoyed over a sufficient period, so far as the use to which the particular space lighted is usually put, cannot be materially encroached upon without some form of compensation. At one time, cases in the courts depended on such general evidence as could be brought forward; more recently, geometrical methods have been worked out whereby the actual illumination can be measured. These methods are laborious, and Mr. A. S. E. Ackermann, 17 Victoria Street, London, S.W.1, sends us particulars of an invention for determining sill ratios which involves neither photographic nor photometric work. It consists of a pane of clear glass attached to two adjustable radius bars, the whole mounted on a stand. This is set up to face the window in question with the centre of the glass at the middle of the sky area. The sine of the elevation is read and the sky area traced on the glass, the observer using a pinhole eyepiece. This diagram is transferred to tracing paper and the sky area measured by a planimeter. This area multiplied by the sine of the elevation angle and divided by a constant gives the sill ratio. The instrument is portable and weighs less than 9 lb.

Skating Rinks and Wave Bathing Pools

ICE skating rinks and wave bathing pools, being used mainly for pleasure, have until quite recently not been seriously studied from the engineering and scientific point of view. The Dolder ice skating rink at Zurich which was opened four years ago has proved such a success that Zurich is now the centre of the ice sports in Switzerland. In the *Escher-Wyss News* of May 1934, D. Mettler describes the open-air skating rink and wave bathing pool in Berne and

points out some of the considerations that lead to commercial success. A good natural water supply is essential as a supply from the town services can never be counted on. The ideal site should be in the vicinity of a wood and on the northern side of a hill as this makes the formation of ice less expensive. It is also advisable, as at Berne, to combine with the ice rink a bathing establishment for summer use. In Zurich the ice rink is combined with a swimming bath which serves in winter as the water tank for the ice rink. Concrete, iron, copper, cork and bitumen are used in the construction of the freezing plate. As their thermal coefficients of expansion are all different and the temperature fluctuations are large the problem presented difficulties. Owing to the thermal expansion, countless minute cracks appear on the plate and this luckily allows it to 'breathe' without injuring the network of tubes. The production of artificial waves in a bathing pool has been studied for many months in the hydraulic laboratory of Messrs. Escher Wyss. They now produce special plant called the 'undosa' for the economic production of artificial waves. Neuchatel has an open air skating rink, and it appears that it is only lack of capital which prevents other Swiss towns from carrying out similar schemes.

The Science Museum

IN its annual reports to the Board of Education, the Advisory Council of the Science Museum, while giving a general review of the progress of the Museum as a whole, has usually devoted special consideration to one of the divisions, directing attention to the gaps in its collections and indicating how the collections should be developed. In its report for 1933, the Council has therefore dealt with the important sections Water and Air Transport, and its remarks go to show that unless steps are taken there is likely to be wasteful rivalry between the Science Museum and other museums supported by the State. Some of the aeronautical exhibits, the report says are on loan from the Imperial War Museum and others from the Air Ministry. When the War Museum moves to its new quarters at Bethlem it may wish to withdraw its exhibits, while the Air Ministry is contemplating setting up a museum of its own. "This would inevitably create three exhibitions of aviation, each incomplete, and in competition with one another." The creation of the War Museum has already had an unfortunate effect on the Water Transport Collections, for as a result of its inauguration "practically no models of men-of-war of the period between 1914 and 1920 are available, and consequently the collection in the Science Museum is completely truncated. It is regrettable," the report says, "that in this, as in other cases, national collections of the same subject matter should be split up between different Museums, and thus lose much of their educative value to the public." Another rival of the Science Museum, not referred to in the report, may well be the National Maritime Museum, which must almost inevitably encroach on some of the territory already occupied by the Science Museum.

History of Self-Starters for Motor-Cars

THE Smithsonian Institution has received from the V. G. Apple Laboratories, Inc., of Dayton, Ohio, a valuable collection of early automotive electrical equipment. The founder of the firm, the late Vincent G. Apple, was one of the pioneers who improved motor-car ignition and lighting systems, and one of the first to produce a successful electric starter. This starter, which was very cumbersome, was listed in 1912 at 350 dollars. To-day, when practically every car has a self-starter, the advertising leaflets are amusing. "Every successful device for the public amusement passes through a period of such enormous popularity that the public overlooks its many imperfected details in the desire to be among the first to possess it." It is pointed out that the necessity of cranking the engine of a motor-car is a most exasperating drawback. Compressed air, gas, acetylene gas and spring starters have all been tried and, except when everything is favourable, they have been found untrustworthy. A starter is a convenience when a car is leaving the garage; it is a necessity when it stops at a busy street corner, but what about starting the car when it stops on a level crossing? The progress of perfecting these devices during the last few years has been so rapid that there is a danger of the beginning and intermediate steps being forgotten. The Smithsonian, therefore, is gathering a collection, as complete as possible, of lighting, starting and ignition equipment.

The American Institute of Electrical Engineers

IN commemoration of the fiftieth anniversary of its foundation, on May 13, 1884, the American Institute of Electrical Engineers has issued a very interesting memorial number of *Electrical Engineering*, representing the official monthly journal and transactions. This number, published in May, and containing more than two hundred pages, is dedicated "To the lasting memory of those public spirited leaders who founded and built to its present eminence the American Institute of Electrical Engineers, and to the inspiration of those of the present and future generations who will continue the constructive leadership of this agency for professional development". Among the famous names of contributors to this issue are those of A. E. Kennelly, who writes on "The Work of the Institute in Standardization", C. A. Adams on "Some Major Events in the Life of the Institute", E. W. Rice, Jr., on "A Century of Progress in 50 Years", M. I. Pupin on "The Equation of Electrical Propagation", while Elihu Thomson and D. C. Jackson deal respectively with "Some High Lights of Electrical History" and "The Evolution of Electrical Engineering".

THESE articles are most useful accounts of progress, and provide an illuminating perspective of the manner in which the electrical engineering industry has attained its present status through the continued effort of the comparatively few, of whom the foregoing names are representative. The biographical notices are no less than 92 in number; England