

scaling concrete; grease, oil, dirt and salt residue were cleaned off and cracks were filled with a sealant. After wetting with water, the 30,000 ft.² of the damaged surface was treated with a liquid acrylic mortar modifier ('Sonocrete') to "... assure a durable bond between the existing substrate and the fresh mortar subsequently applied". This was followed by a 0.25-in. layer of concrete mortar modified with 'Sonocrete'. The new surface was then swept with a stiff broom to create a serrated finish. After three days, a final coat of 'Sonocrete' was applied to afford additional protection from water and salt. Following a further winter of use, the pavement is still in excellent condition; adhesion to the old surface is described as outstanding; little damage has resulted from freeze-thaw cycles and the abrasion-resistant surface has withstood the punishing effect of tyre-chains and snow-removal plant. This article gives details of other 'Sonneborn' products for use with concrete and masonry, for example, sealants, caulking agents, waterproofing compounds, and decorative protective finishes; also described is a series of 'Rhoplex' acrylic emulsions manufactured by Rohm and Haas which, among other compounds, includes polymers developed specifically for use in modifying Portland cement.

New Zealand State Highways

THE Road Research Unit of the National Roads Board, New Zealand State Highways, publishes quarterly a *Newsletter* which is intended to portray a cross-section of the factors relating to New Zealand road and traffic research problems. In publicizing the activities of the Road Research Unit, this *Newsletter* is also designed to arouse interest and stimulate thinking about road problems, and to indicate periodically the tremendous and ever-growing fund of knowledge of road technology already available. A recent issue of this publication well illustrates its scope (*Road Research Unit Newsletter*, No. 8. Pp. 21. National Roads Board, Wellington, July 1965). The State Highways authorities attach great importance to traffic-volume records on their network of roads, especially for connecting links between towns and rural highways. Automatic counters are used for this purpose to record traffic flows at count stations at country-wide locations. At three-yearly intervals a complete analysis is made to establish the annual average daily traffic values, and a map of both North and South Islands produced to indicate the general form of traffic volumes; one such map, of a part of North Island prepared in 1964, is reproduced in this *Newsletter*; it is most instructive. Another feature is a summary of local road trials and research in progress throughout the country so that all interested parties may be kept up to date with the knowledge of 'who's doing what'; this is to encourage people with particular problems to consult others faced with a similar problem. Fifty-four separate activities are listed, under headings which include topic and scope (nature of the trials, problems involved, materials concerned); location; responsible authority; and state of the investigation to date. An article entitled "Why Full-Scale Road Tests?" lucidly explains, even to the uninitiated, the reasons underlying the practical use and value of trials of traffic-pavement relationship in aiding design of new road foundations and surfacings built to withstand the ever-increasing demands of traffic densities, vehicle speeds and wheel loads, particularly significant in the case of heavy commercial transport, as the Road Research Laboratory in Britain has emphasized for many years past, some of its work in this connexion being quoted in this issue of the *Newsletter*. This is a brief but admirable publication.

Australian Prehistory

IN recent years, the prehistory of the southern part of Australia has been set on a firm basis. This is, in large measure, due to the influence of F. D. McCarthy, of the

Australian Museum at Sydney. Nowadays it is no longer a matter merely of collecting surface finds of stone tools and of vague descriptions of the painted rock-shelters, but sites are carefully located and excavated—care being taken to determine the stratigraphy, and to make complete lists of all the various types of tool found. Such an account appears in the June 5, 1964, issue of the *Records of the Australian Museum*, written by McCarthy himself, which deals with the investigation of a series of sites in the Capertee Valley in the Glen Davis area (26, No. 6. Pp. 197–246 + Plates 11–24. Sydney: The Australian Museum, 1964. 16s. 6d.). There are a number of excellent illustrations of the finds. The results show a definite development in the stone working during the occupation of the sites and the final assemblages are rich in types of tool. They include blades with notched edges, side and end scrapers, pointed blades, cores, microlithic tools of various types and pounders. Most of the article, of necessity, is given up to a description of the finds. It is an article not to be missed by students interested in the early prehistory of Australia.

Pyrethrum from New Guinea

AS is well known, pyrethrum is a natural insecticide having the unique advantage of toxicity to almost all insect pests, but harmless to man and animals. No synthetic product has so far been discovered that is able to match, let alone to rival, its peculiarly rapid properties in problems of insect extermination. Yet we learn that at present there exists a world shortage of pyrethrum extract for this purpose, which has grown increasingly acute with a general rise in living standards, according to an article in a recent issue of *Albright Magazine* (Albright and Wilson, Ltd., London. October 11, 1965). The firm of Stafford Allen, Ltd., one of the Albright-Wilson group, with long-established experience of the pyrethrum business, in collaboration with the administration of the Territory of Papua and New Guinea, has set up a cultivation centre for production of pyrethrum insecticide on a large scale in the Western Highlands of New Guinea, complete with a modern extraction plant, at Mount Hagen, a few hundred miles north-west of Port Moresby, in what looks like most uninviting country; it is, in fact, quoted as "... a vast fertile plain ringed by mountain walls soaring to over 15,000 feet above sea-level and inhabited by natives still in the Stone Age". Pyrethrum will only flourish and produce economic quantities of its toxic ingredients under specific optimum conditions: a combination of altitude, climate and soil: this particular project in New Guinea is satisfied by all three. It is said that altitude is the most important single factor to successful cultivation, but such benefits as stable temperature, an equable balance of sunshine and rain, and equal hours of day and night at all seasons of the year, are material items. Such favourable environmental circumstances make it practicable to plant a selected strain of pyrethrum flowers in different areas, thereby ensuring that the harvest period is spread over the whole year, a vital factor to the continuous operation of the extraction plant and, incidentally, to the employment of a needy native population. This project is the first major industrial operation in this remote area of the Western Highlands of New Guinea. The capital investment involved in bringing it to fruition is in the region of £250,000, and to handle the scheme a new company—Stafford Allen (New Guinea) Pty., Ltd.—has been formed. The coloured illustrations to the article help to convey some idea of the territory concerned, including the pyrethrum flower involved (which resembles an ordinary marguerite) and of the natives who work in these somewhat unusual fields.

Hospital Lighting

DOCTORS examining patients and pathological specimens in hospitals frequently have to note accurately the colours