resistance; the PTFE fluorocarbons are capable of continuous service at 260° C (500° F); they can withstand much higher temperatures for limited periods. So important are these 'Teflon' products that they modestly fill a periodical magazine, *The Journal of Teflon*, in their own right, among other Du Pont publications, and a recent issue contains much technical information concerned with their performance in many different circumstances, but notably under high temperature conditions (Du Pont de Nemours International S.A., Case postale, CH-1211 Geneva 24, Switzerland (Du Pont Co. (U.K.), Ltd., Fetter Lane, London, E.C.4). **6**, No. 5; October–December 1965).

Among the many successful applications of these resins are: wire insulation rated for continuous service at 260° C; fuel hose in aircraft and missiles at temperatures to 260° C; pump diaphragms rated for service up to 149° C; valve packings handling corrosive chemicals at temperatures as high as 260° C; and ball seals in aircraft valves, to give a leakproof seal at temperatures up to 204° C. It is stated that few, if any, other resins or elastomers can show such an impressive record. In the article describing these properties, information is also given on the behaviour of PTFE resins at temperatures ranging from 149° to 427° C; these should be valuable to the designer in predicting performance and life expectancy of components of these resins at such temperatures. Many of their applications impose severe combinations of mechanical, thermal, environmental, and electrical stresses simultaneously; relevant data for these conditions are given under sub-headings: strength at high temperatures, stiffness and deformation, expansion and friction, electrical properties, special design considerations, and safety in design.

Building in Warm Climates

THE ultimate success of a building should not be gauged solely in terms of its appearance or investment potential; too little consideration is given generally to its functional design. So argues J. F. van Straaten in a paper entitled "Warm Climates and Building" (National Building Research Institute, South African Council for Scientific and Industrial Research, Pretoria. Reprinted from *CIB Bulletin No.* 4, 1964. CSIR ref. *R/BOU* 149. Pp. 5.). The author is chief research officer to the Research Institute, and although his remarks are directed critically to building in warm climates, much of what he says regarding functional design is of much wider significance. Buildings should satisfy minimum requirements in respect of thermal performance, ventilation, lighting, acoustics, structural stability, durability of materials, overall resistance to rain penetration, and all other factors consistent with the functioning of good community and family life. Admittedly some of these requirements are not controlled by climate, but this certainly does play a major part in any concept of functional design. It is claimed that in warm climates, particularly, more research is necessary into effects of asymmetric radiation conditions on sensations of warmth, selection of rational design weather data in terms of probability of concurrence of relevant weather elements, and degree of control of indoor environment by building procedure. Special attention is given in this paper to the thermal performance of heavy-weight and light-weight buildings; it is shown that heavy-weight structures are thermally superior to light-weight structures in warm–arid areas, the opposite applying in warm–humid areas. In considering the thermal environment of buildings, the important factors to take into account are heat-storing capacity of the structure as a whole, insulation properties of the various elements, control of direct and indirect solar heat gains, and rate of ventilation of the building. Some preliminary results of tests now in progress on test structures have so far proved that uninsulated single-skin light-weight construction, even with a concrete floor, is not acceptable for permanent housing; partial insulation of structures serves very little useful purpose; addition of insulation to walls and roof considerably improves indoor living conditions; and if exposed surfaces are painted white, the thermal performance of light-weight structures improved significantly; their ventilation, however, is of prime importance.

Protochordata

THE protochordate section of *The Zoological Record* affords some measure of the sheer enormity of the task of compiling and presenting information of this kind, and particularly so when it is realized that this section is but one of twenty in the present volume of the *Record* (**100**, section 14; 1963. *Protochordata, together with Pogonophora, Enteropneusta, Graptolithina, Pterobranchia and Phoronidea*. Compiled by Dr. D. B. Carlisle. Pp. 50. London: The Zoological Society of London, 1965. 12*s*. 6*d*.; 1.80 dollars). Section 14 deals with published literature on the Tunicata and Cephalochordata, together with the Hemichordata, Phoronidea and Pogonophora. The information is treated under three headings: a list of titles arranged according to authors; a subject index in which each of the five taxa is dealt with separately; and a systematic index. It is beyond the scope of this review to attempt an evaluation of the entries, but three seem worthy of special mention. The year 1963 saw the publication of Dr. Carlisle's translation of the monograph by Ivanov on the Pogonophora, and in that same year Poulsen recorded pogonophores from the Cambrian of Sweden, thereby giving the phylum a history at least as long as the Phanerozoic Era; in 1963 also, A. H. Müller's text on the Stomochorda appeared. The number of entries concerned with the extinct hemichordate class, the Graptolithina, is impressive, and if the services of a palaeontologist had been enlisted during compilation it is likely that a number of errors would have been avoided. Thus, for example, Llandeilian would not have appeared as 'Llandillian', nor would a reference to *Mesograptus* have been included in the Monograptidae instead of the Diplograptidae. These are minor defects, however, and detract little from the immense value of the publication.

Boarding Schools for Maladjusted Children

THE Department of Education and Science *Building Bulletin* No. 27 is not concerned with the theories of the treatment and cure of maladjustment, and only discusses the personal relationships which play such a large part in therapy where they appear to affect the design of boarding-school buildings (*Boarding Schools for Maladjusted Children*. Pp. v+16. London: H.M.S.O., 1965. 4*s*. net). Its purpose is to analyse the requirements of maladjusted children and to advise the architect on how to produce the sympathetic physical environment which they need. The ideas set out in the *Bulletin* have been assembled in the hope that they may assist local authorities and others concerned with planning new boarding schools for maladjusted children to help the child so that he can return to his normal place in family life as soon as possible. Although the *Bulletin* develops in some detail one particular approach in design, it leaves room for a variety of solutions.

University News: Aberdeen

THE following appointments have been made: *Lectureships*, Dr. P. S. Ashton and Mr. K. Jong (botany); Dr. I. Parsons (geology); *Research Fellowships*, Dr. I. M. Brattsten and Mr. H. Kramer (chemistry).

Belfast

DR. P. W. KENT has been appointed to the chair of biochemistry in the Queen's University of Belfast. The