

icity. The quoted examples of physiological rhythms related to latitudinal and longitudinal variations in solar time show how far the few experiments are from determining the external signals and the internal clocks by which animals time daily and longer physiological rhythms.

There is an interesting chapter on mammals in cold and their utilization of insulation, if large enough, for free movement, or if too small their evasion of exposure. The encounter with heat involves more complex measurements, and the scale of naturally tolerable high temperatures is of comparatively short length for most animals. Adaptation to high temperatures is accomplished by extremely interesting behaviour and physiology which have prompted new studies revealing the ingenuity of nature and the perceptive imagination of experimental scientists.

The multiplying conferences, bureaus, studies, and courses using the term 'environmental' science illustrate that the subject is what one wants to make of it. Environment may refer to a portion of the earth, to the surroundings of an urban or other population and their influence upon health, agriculture, or industry. Folk has selected measurable conditions representative of several contrasting geographical regions and he has presented views of physiological reactions that result and appear to adapt individual men and other mammals to living where they are. Any one of us would be likely to select some other views and might differently relate the results with biology and human affairs. By looking at the situation through his own profession as a physiologist Folk has provided interesting examples of the physiology of mammals in relation to conditions in different regions of their natural environments. Readers will probably not criticize his special attention to the somewhat simplified view of arctic life that is provided by its extreme conditions.

*Laurence Irving*

STANDARD DEVIATIONS OF MONTHLY AND ANNUAL MEAN TEMPERATURES. By G. R. KENDALL and S. R. ANDERSON. *Climatological Studies Number 4*. Toronto: Canada Department of Transport, Me-

*teorological Branch, 1966. 17 pages of text and tables + 16 figs.*

This study follows the pattern of the other numbers in the series of Climatological Studies in summarizing the bulky climatological observations in a convenient form for the general user as well as for the scientist who has no access to the basic information.

Accordingly, the publication consists of 6 pages of tables of the monthly standard deviations which are well laid out and are easy to read. The only shortcoming is perhaps that too much geographical knowledge is assumed of the general reader, since only station names but no coordinates are given.

The data in the tables are further represented in 16 pages of monthly maps of the standard deviation and graphs of the annual trend for selected stations. All maps and graphs are clear and well represented.

In the text (11 pages) the authors discuss first the method of calculation of standard deviations, the statistical assumptions in the concept of this parameter, and the errors. Although the text is short, it is easily understandable even to readers with no statistical background. This part is concluded with the welcome remarks about other information which can be obtained from the standard deviation, i.e. the calculation of degree days, a concept of importance to practical applications of climatology.

The discussion of the results covers only 11 pages and gives mainly the factual description of the monthly maps and annual trends, pointing out the facts already apparent from the graphical representations, namely that the variability of mean monthly temperatures is higher in winter than summer, and in winter higher in the mountains of the West and in Labrador than in the rest of Canada. The explanations for the shown phenomena, if given at all, are cursory and not very satisfying.

It seems, however, quite clear from the layout of the booklet that its aim is not the scientific analysis of an important climatic parameter, but rather the presentation of basic information. Viewed in this way the mentioned minor shortcomings are unimportant and the publication can be regarded as a valuable contribution to our knowledge of the climate of Canada.

*E. Vowinckel*