stration of a relationship between gross protein binding of hydrocarbons and a metabolic route that is specific to the carcinogenic process (*12*). In this study of contact carcinogenesis, there has been no identification of a specific metabolic route distinguishable from detoxication. The degradation of a hydrocarbon applied to the skin should involve enzymes, in view of which the results are reasonable. It is of interest that two examples of high metabolic activity in the skin have been found.

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Sex Difference in Eosinophil Counts in Tail Blood of Mature B_1 Mice

Eosinophil counts in tail blood of mice vary with the phase of the daily adrenal cycle (*1–4*) in males (*1, 4, 5*) and in females (*6*) of several inbred strains and their hybrids. Strain differences in characteristic eosinophil levels—obtained at the daily time of high counts—have also been described (*7*). The study reported here (*8*) led to the additional detection of sex differences in the eosinophil count of mature mice of an inbred strain.

The mice studied were of a subline of the C_{57}-black stock (B_1) which had been maintained in the Division of Cancer Biology at the University of Minnesota by brother-to-sister mating for more than 20 generations. The animals were 8¼ months ± 1 week of age at the time of study. For 7 days prior to the study, they were singly housed in a room maintained at 25.6 ± 0.6°C and illuminated from 6 A.M. to 6 P.M. and darkened from 6 P.M. to 6 A.M. Purina Fox Chow and tap water were available to the mice from the time of weaning and throughout the study. Except for the activities associated with cleaning the cages, feeding the mice, and filling the water bottles, the animals were not intentionally disturbed from birth until the time of study. The study was begun at 8:30 A.M. and ended at 8:30 A.M. the following day. It involved eosinophil counts on tail blood obtained from separate groups of mice at 4-hour intervals. Each mouse was thus used for venesection only once. The assembly-line procedures employed for eosinophil counts have been described (*7*).

Figure 1 shows the mean count ± 1 standard error for the two sexes. The 24-hour eosinophil rhythm stands out clearly for each sex, in agreement with the results of earlier work on this subject. But the level around which the mean count cycles in the two sexes, which was previously not compared, is not the same in the two sexes as far as the stock and age-group studied are concerned (Fig. 1). The females exhibit lower counts than the males, without any overlap of mean counts throughout the 24-hour period. Subsequent work on the same mice revealed that the mean paired adrenal weights of the females were higher than those of the males and that the ascorbic acid concentrations in glands from females were higher than in glands from males.

The observation of a sex difference in adrenal weight of B_1 mice extends to this stock observations on the sexual dimorphism of the adrenals, which was reported earlier for several animal forms (*9*). The sex difference in eosinophil count deserves more study, for it may be related to sex differences in adrenal secretory behavior, as anticipated but not yet reliably established (*9*).

The possible relation of the sex difference in eosinophil level to a sex difference in adrenal secretory activity comes to mind in view of the known eosinopenic effect of both cortical and medullary adrenal hormones (*2*). The role played by interaction of the longer estrus cycle (*10*) with the daily adrenal cycle (*2, 4, 6*) which maintains the eosinophil rhythm must also be considered. But whatever may underlie the differences noted, it seems fair to conclude that, in B_1 mice of the age group studied, eosinophil counts can be shown to be a function not only of strain and of phase of daily cycle but also of sex.

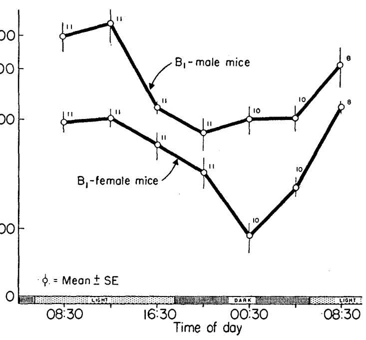

Fig. 1. Sex difference in mean blood eosinophil counts of B_1 mice approximately 8 months old. The number of mice used given above each point; serially independent sampling.

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29 October 1956

Tentative Correlation of Alaskan Glacial Sequences, 1956

A tentative correlation of the Cook Inlet and other Alaskan glacial sequences was published in 1953 (*1*). Since then, additional field and radiocarbon data have accumulated that necessitate some revisions in the 1953 correlation chart. These revisions (Fig. 1) include additions to earlier published glacial sequences and changes in correlation with the type Pleistocene chronology.

Correlations with the standard North American Pleistocene chronology have been revised in accordance with new radiocarbon data relating to both the Mid-continent and Alaskan sequences. Reruns of radiocarbon samples W-76, W-77 (*2*), and also W-174 (*3*) by the more accurate gas-counting method (these samples were originally analyzed by the solid-carbon counting method) indicate that the lower boundary of the

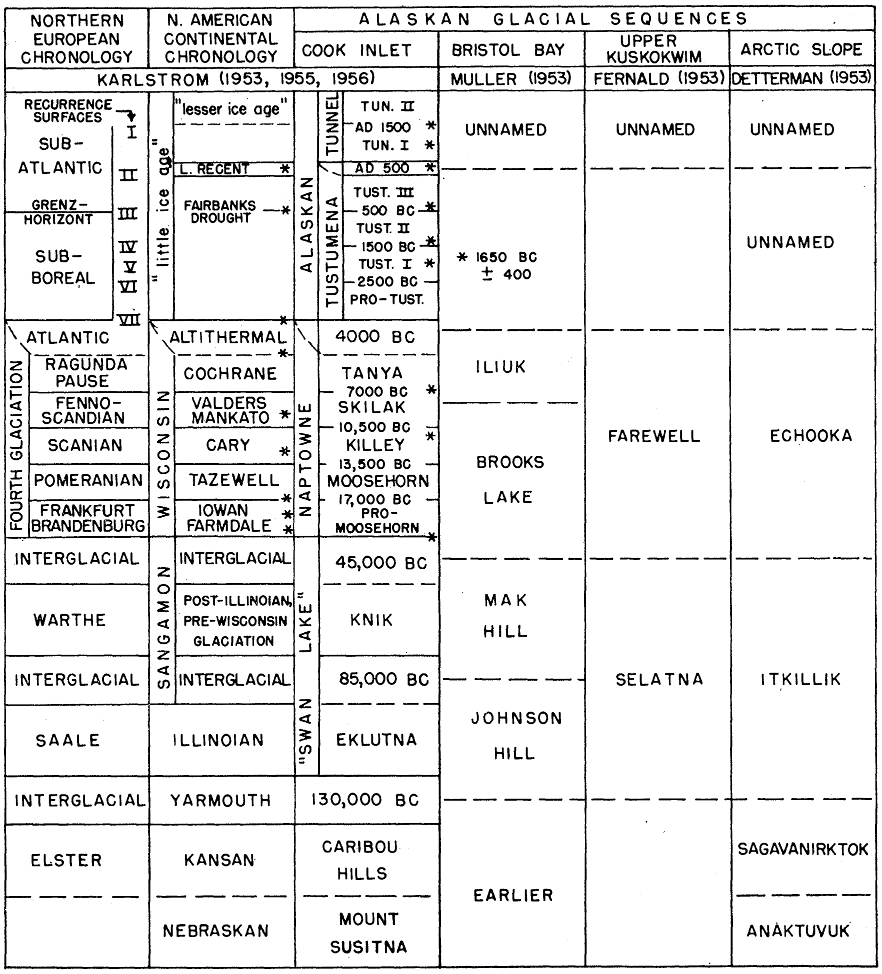

Fig. 1. Tentative correlation of glacial events in Alaska. The stratigraphic boundaries that have been dated by radiocarbon methods are indicated by an asterisk.

Naptowne glaciation of the Cook Inlet region is dated at greater than 36,000 B.C., instead of around 12,000 B.C. as previously published (*4*). These results, combined with the numerous other radiocarbon dates available from the Cook Inlet region, provide a chronology that is in general agreement with the radiocarbon dating of the type Wisconsin sequence (*5*) and with published historical, varve, and radiocarbon dating of the northern European Fourth Glacial (*6*) and postglacial climatic events (*7*). Thus it is evident that the Naptowne and correlative Alaskan glaciations represent all, not part, of Wisconsin time, as previously considered, and that the pre-Naptowne and correlative glaciations are of pre-Wisconsin age.

These correlations satisfy parallel sequence and support the concept of essentially contemporaneous past climatic changes throughout the Northern Hemisphere. The radiocarbon-dated glacial chronology strongly implies astronomic climatic controls with glacial events of stage rank being determined by the "Obliquity Cycle" with a periodicity of about 41,000 years, as recently recalculated from celestial mechanics by van Woerkom (*8*). A similar conclusion concerning climatic control of glacial stage events was reached by Emiliani (*9*) from independent studies of deep-sea cores and paleotemperatures of ocean water. Glacial events of substage and lesser ranks with periodicities of between 3000 and 4000 (about 3400), 1000 and 1200 (about 1100), and 500 and 600 (about 550) years may be genetically related to the tide-generating force curve (*10*), which was also calculated from celestial mechanics. The dates applied to glacial stage events beyond the range of the radiocarbon method in the Cook Inlet chronology are estimates based on a correlation of the glacial sequence with the Obliquity Cycle curve.

The subdivisions of the chronology shown in Fig. 1 are placed near culminations of interglacial, interstadial, and retreatal phases of lesser rank which preceded significant periods of general glacial advance. By definition, then, each recognized subdivision encompasses both an interval of general glacial advance and the following interval of general glacial retreat. This convention, it is believed, emphasizes the natural divisional boundaries that are most directly recorded by geomorphic and stratigraphic evidence in glaciated regions, provides a convenient method of systematic subdivision of glacial periods into their subordinate components, and cuts the nomenclature problem in half by eliminating the necessity of naming both the advancing and retreating phases of each glacial fluctuation.

The correlation of the Alaskan glacial sequences shown in Fig. 1 has been done in direct consultation with E. H. Muller (*11*), A. T. Fernald (*12*), and R. L. Detterman (*13*) of the U.S. Geological Survey. Precise correlation of morainal sequences of differing complexities from widely separate regions of dissimilar topographic and climatic character is difficult in the absence of critical fossil or radiocarbon data. The correlation problem is further complicated by the recent recognition of a post-Illinoian, pre-Wisconsin glaciation in the Mid-continent region (*14*). Although this glaciation has yet to be formally established in the type North American section, geologic data in Alaskan regions where detailed information is available support consideration of this glaciation as an important climatic event of stage rank during Sangamon time. Numerous correlation problems remain, and the accompanying chart should be taken as a somewhat improved but still preliminary correlation that is subject to refinements as additional critical field and radiocarbon data are obtained.

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