fact the eye very frequently did drift *toward* the trigger point in the interval between fixation-target offset and saccade beginning; this is of general interest with regard to suggesting that ocular drift in the dark can be influenced by a pattern of expectancies.

6. L. Matin, *J. Opt. Soc. Amer.* **54**, 1008 (1964); L. Matin and D. G. Pearce in *Biomedical Sciences Instrumentation*, W. E. Murry and P. F. Salisbury, Ed. (Plenum, New York, 1964), vol. 2, p. 79–95.
7. When a "same" report was given, a forced-choice was then obtained.
8. The scales on the abscissa in both Figs. 1 and 2 neglect the fact that image inversion is produced by the dioptrics of the eye. The abscissa value of a trial in Fig. 1 is obtained, for example, as follows: If on a given trial the eye had moved 64 minutes to the right from fixation position at the time the second flash was presented, and if the second flash was 65.5 minutes to the right of the first flash, it would be 1.5 minutes retinal distance to the right of the first flash (abscissa plotted to the nearest minute). The values shown in Fig. 2 were similarly obtained.

   Abscissa values for a given location of the flash target varied among trials for the following reason. (i) The voltage setting for the electrical signal monitoring eye position was not set at exactly the same value in different sessions when the eye was on the fixation target. Since the voltage at which the second flash was triggered was always the same, the eye traveled different distances from the fixation target at the time the triggered flash was presented in different sessions; hence the triggered flash from a given target location struck different retinal loci. (ii) After the offset of the fixation target the eye was in complete darkness for 300 msec until the occurrence of the first flash. Although the subject attempted to maintain the fixation position during this interval, considerable drifts of variable magnitude did occur (see *2*) so that at the time the first flash occurred the eye was in different positions from trial to trial with the result that the first flash struck different retinal loci from trial to trial. (iii) Trial-to-trial variation in average fixation position or slippage of the contact lens from fixation period to fixation period, or both, resulted in trial-to-trial variation in the difference in retinal loci between fixation and first flash, and variation in the distance which the eye traveled to the trigger point for the second flash.
9. The latency of the retinal response to the flash may be expected to vary with flash intensity and state of adaptation of the eye. In our present state of knowledge, however, we have no reason to expect the lag between the turning of the eye (either actual turning or "effort" to turn) and the proprioceptive signal's arrival at the point of convergence to vary with either flash intensity or adaptation level. The latency-mismatch interpretation would thus predict a variation with flash intensity and adaptation level in amount of compensation as measured in experiments of the type reported here. While it appears difficult to handle the results of the present experiments without a precise neural timing mechanism which takes latency differences into account, it seems unlikely that the specific intensities and adaptation levels which were used (and which were chosen without any forethought) would fortuitously result in compensation of the accuracy observed in the second experiment if only the specific latency-matching (or mismatching) approach described above was involved.
10. Errors of localization relative to a continuously present background for flashes presented during voluntary saccades have been reported. G. Sperling and R. Speelman, paper read at convention of American Psychiatric Association, September 1964.
11. This research was supported by NSF grants G-18120, GB-944, and GB-2899. The experiments were performed at the Department of Psychology, Johns Hopkins University.

16 February 1965

Warm Interstadial Interval in Wisconsin Stage of the Pleistocene

A summary of Atlantic deep-sea stratigraphy of Pleistocene sediments by Ericson, Ewing, and Wollin (*1*) includes a conclusion that there was a marked, but brief, warm interval within what is generally regarded as the Wisconsin (Würm) glacial stage, some 80,000 years ago. This date was obtained by assuming fairly uniform rates of sedimentation in the deep Atlantic over a large span of time. Charles Stearns and David Thurber (*2*) have determined from the ratio of thorium-230 to uranium-234 that some of the Tyrrhenian and Ouljian low terrace deposits of Mallorca and Morocco record a nonglacial interval of high sea level 75,000 to 90,000 years ago. This is considerably more recent than usual dates given for the elevated low coral reefs, shore dunes, and marine platforms of the western Atlantic and elsewhere, apparently formed somewhat more than 100,000 years ago in the Sangamon (Riss-Würm) interstadial interval (*3*).

Recently I collected well-preserved hermatypic coral rubble of species now absent in immediately adjacent waters. These were welded by calcareous caliche to a marginal platform cut in an eolianite ridge on the northwestern side of Lignum Vitae Cay, Berry Islands, Bahamas. This narrow bench slopes seaward from about 3 meters to less than ½ meter. One of the corals, *Montastraea* sp., was dated at 80,000 years by Broecker and Thurber, at the Lamont Geological Observatory, by uranium, thorium, and radium ratios (*4*).

It is becoming apparent that sea level stood appreciably higher than the present level for a brief interval about the middle of Wisconsin time. Evidence for this higher level was recognized at a number of places on Andros Island, Bahamas, by Newell and Rigby (*5*), and it was their opinion that this high level might date from the last interglacial stage. Elevated sea caves occur at the same level a mile or so west of Nassau, and about a mile south of Nicholl's Town (Andros). Probably these caves also date from the 80,000-year-old sea level. Certainly, this 2- to 3-meter level does not date from the post-Pleistocene "hypsithermal" interval, as often postulated by students of Pacific coral reefs. Where are the fringing coral reefs and elevated marine sediments of mid-Wisconsin age? They should be widely distributed.

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References

1. D. B. Ericson, M. Ewing, G. Wollin, *Science* **146**, 723 (1964).
2. C. Stearns and D. Thurber, personal communication.
3. N. D. Newell, *Z. Geomorphol.* **3**, suppl., 87 (1961).
4. W. S. Broecker and D. Thurber, personal communication.
5. N. D. Newell and J. K. Rigby, in "Regional Aspects of Carbonate Deposition—a Symposium," *Soc. Econ. Paleontol. Mineral Spec. Publ. No. 5* (1957), p. 68.

5 May 1965

Sap Pressure: Addendum

The following scientific names pertain to Fig. 3 in the article "Sap pressure in vascular plants" [*Science* **148**, 339 (1965)] by P. F. Scholander, H. T. Hammel, E. D. Bradstreet, and E. A. Hemmingsen. I am indebted to Reid Moran, of the Museum of Natural History, San Diego, for identification of several species.

From left to right: *Rhizophora Mangle*, *Avicennia nitida*, *Laguncularia racemosa*, *Batis maritima*, *Distichlis spicata*, *Salicornia pacifica*, *Populus Fremontii*, *Platanus racemosa*, *Chilopsis linearis*, *Dalea spinosa*, *Prosopis juliflora*, *Tamarix aphylla*, *Fouquieria splendens*, *Salvia apiana*, *Encelia farinosa*, *Acacia Greggii*, *Atriplex polycarpa*, *Larrea divaricata*, *Juniperus californica*, *Pseudotsuga Menziesii*, *Sequoia sempervirens*, *Tsuga heterophylla*, *Acer macrophyllum*, *A. circinatum*, *Darlingtonia californica* (flower stalk), *Cypripedium californicum* (flower stalk), *Thuja plicata*, *Oxalis oregana*, *Dryopteris Linnaeana*, *Pteris aquilina*, *Blechnum spicant*, *Adiantum pedatum*, *Spiraea Douglasii*, *Cornus californica*, *Salix lasiandra*, *Myrica Hartwegii*, *Comarum palustre*, *Cicuta Douglasii*, *Menyanthes trifoliata*, *Veronica scutellata*, *Polygonum punctatum*.

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