References and Notes

1. S. M. McGinnis and L. L. Dickson, *Science* **156**, 1767 (1967).
2. K. S. Norris, *Ecology* **34**, 265 (1953).
3. C. B. DeWitt, *Amer. Zool.* **2**, 403 (1962).
4. The means with their corresponding standard deviations are: for desert iguanas under laboratory conditions, 38.9° ± 0.9°C; under summer field conditions, 41.9° ± 1.2°C. Student's *t*-test for these populations has a value of 9.
5. C. B. DeWitt, thesis, University of Michigan, Ann Arbor (1963); ———, *Physiol. Zool.* **40**, 49 (1967).

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DeWitt's comments are a valuable postscript to our paper. What appears to be a rather loose statement concerning the close similarity of body temperatures (means) obtained in the field with mercury thermometers and those acquired in a laboratory thermal gradient from lizards implanted with miniature thermal transmitters stems from an unfortunate omission of a second reference (*1*) which appeared in the first manuscript but which was evidently lost in the revision. The fact that the plural noun "means" was followed by only a singular reference was overlooked by both the reviewers and the authors. The omitted mean of Cowles and Bogert (37.4°C) places the mean in the laboratory near the midpoint of means in field experiments reported for this species. This was the intended implication of the statement. We certainly did not intend to imply that there are no statistical differences between reported means. Indeed, the major point of an earlier paper (*2*) concerning the preferred body temperature of the western fence lizard is based on a 3°C difference in means.

As to the statement that the desert iguana abandons temperature regulation at preferred levels under hot environmental conditions, we feel that this hypothesis requires some further study and consideration. Such an abandoning of preferred mean body temperature for a higher mean implies acclimation to higher environmental temperatures, a phenomena which has not been demonstrated in heliothermic lizards. Indeed, a reverse condition has been shown for two species (*3*).

There is also the question of how the burrow and the lower temperatures which it offers should be viewed in the regulatory scheme. In our spring study, the burrow appeared to be a permanent retreat area. Once lizards emerged in midmorning they remained above ground until midafternoon. Norris (*4*), however, reports a bimodal picture of surface activity in which the burrow was not only an evening retreat but also an area to which to escape during excessive midday temperatures. If one acknowledges the burrow as a substitute for shaded surface areas which on summer days offer no suitable thermal relief, then body temperatures acquired in these burrows between morning emergence and evening retreat should contribute to the preferred daily mean. With such an interpretation, the resulting summer mean may deviate only slightly if at all from means obtained in spring or in the laboratory.

Finally, one may expect to see consistently lower means obtained through biotelemetry compared to those obtained by capturing a lizard and taking its cloacal temperature with a mercury thermometer. The "grab and jab" method appears rather bias to those lizards in full sun and plain view as opposed to sequestered individuals in deeply shaded surface areas.

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Stability of Biogenetic Opal

Wilding (*1*) described the isolation of 75 g of biogenetic opal from 45 kg of soil and the dating of the occluded carbon within opal phytoliths at 13,300 ± 450 years before the present. He concluded, therefore, that biogenetic opal is stable for relatively long periods and may be useful for radiocarbon dating. With respect to the stability of biogenetic opal, there is also paleontologic evidence that is relevant.

Smithson (*2*) described phytoliths from the fine sand and certain fractions of British soils. He recognized that these opaline bodies came from plants, especially grasses. In the same year Baker and Leeper (*3*) recognized phytoliths in Australian soils, but concluded that "the mean life of these phytoliths in soil may not exceed the order of a thousand years, otherwise they would have accumulated to a greater extent than the one or two percent commonly found." Baker (*4*) stated that the term phytoliths could be used for both recent and fossil microscopic bodies of this nature "if fossil examples are subsequently shown to exist"; later (*5*) he reported success in discovering fossil opal phytoliths. Baker (*6, 7*) also referred to the phytoliths that appear in diatomaceous earth and similar deposits in the Tertiary and Quaternary sediments of Victoria. Being involved at that time with large numbers of slides of fossil diatoms prepared by B. Tindale, and anticipating that phytoliths would occur in the same conditions that had preserved the diatoms (since they are of similar chemical composition), I examined the slides and discovered that phytoliths were indeed present. I began with Holocene deposits, and then examined slides of still older floras extending back to Upper Pliocene age; the latter were found to contain opal phytoliths. The Upper Pliocene deposit referred to occurs on the Grange Burn, 6 km (4 miles) west of Hamilton, Western Victoria. It is overlain by a basalt flow which has been dated by the potassium-argon method as 4.35 million years old (*8*).

Thus, to the evidence of Wilding there can be added the paleontologic evidence from Australia which indicates that biogenetic opal is indeed stable for long periods of time under certain chemical conditions. It should be noted that while Wilding's date of 13,300 years is for biogenetic opal in soils, the paleontologic evidence quoted here is for phytoliths that have been preserved in deposits in a condition of chemical reduction.

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