an advance in physical understanding of an observed world.

The claims sometimes made for the "Mach principle," on the other hand, are misleading. We have *not* reached any further understanding of inertial effects per se; Einstein's metric is still "Euclidean in the small"; a Foucault pendulum still mysteriously honors the distant configuration of Newton's fixed stars. Here indeed we have real physical facts, as unexplained now as when Ernst Mach was writing. So might not our "younger cosmologists," as they peruse the history of science, profitably also contemplate the mystery of absolute rotation, and search for the illuminating principle, yet to come, that will explain accelerative "forces," and relate the great, small, and distant in our universe? This must surely be a problem for physical insight, with mathematical ingenuity only of accessory use.

FRANK B. ESTABROOK
North American Aviation, Inc.,
Downey, California

29 October 1954.

Acclimatization?

Carroll B. Nash has presented some very interesting data on heat death temperatures and exposure times for *Goniobasis livescens* [*Science* **119**, 773 (1954)]. For this he deserves commendation. I seem, however, to perceive some important implications in his data that are not brought out clearly in the text.

Reference to Table 1 of his paper shows that greater mortality occurred among the slowly heated snails than among the quickly heated ones when the time of exposure to the *maximum* temperature was short. As this exposure time was extended to 30 min and longer, the rapidly heated snails died just as often as the slowly heated ones. It appears as if this were direct evidence that heat penetration was forcing an increase of internal temperature during the longer exposure periods.

Evidently most *G. livescens* will die if they are exposed for 60 min to a temperature of 36°C, that is, if their internal temperature is elevated to this point. Consider, then, what happened to the "acclimatized" group, which, having been held at 36°C for 5 min, was heated to 37°C for 5 min, then to 38°C and so on, and was finally warmed to 41°C for 1 min and then cooled. Their complete mortality simply suggests that they were heated through, and, as is the case with many creatures, their "constitution" simply could not stand that. The rapidly heated group, however, suffered very little from their 1-min exposure because they were clearly not heated through in the time allotted.

It is unfortunate that Mr. Nash has not presented the weights of the individuals that died or survived in each test. Since the weights varied from 0.3 to 1.1 g, and the volumes, therefore, varied in this same ratio, it is clear that the smaller individuals underwent a much more severe test than the larger ones because of their much larger surface area/volume ratio. It would be interesting to know whether the individuals that died when rapidly heated for 5 and 10 min were the small ones of their respective groups.

The data, therefore, tell nothing about "acclimatization" except that it is dubious. The pertinence of "rate of heating" can be established by simple relationships between thermal conductivity and size of the individual snail.

A. NELSON DINGLE
Engineering Research Institute,
University of Michigan, Ann Arbor

24 November 1954.

With the exception of the presumed relationship between the size of the snail and its rate of heating, I find no implications in the data cited by Dingle that are not apparent in the original article. The snails were divided into groups of "large," "medium," and "small" individuals, with the same ratio of individuals of these three groups in each of the 87 sets of snails. Because of this, it is unlikely that the surface area/volume ratio significantly contributed to the differences of mortality rate in the several sets of snails. No correlation between mortality rate and body size was apparent from the data, and the individuals that died when rapidly heated for 5 and 10 min were not disproportionately representative of the "small" snails.

CARROLL B. NASH
Department of Biology,
Saint Joseph's College, Philadelphia 31,
Pennsylvania

6 December 1954.

Relationship of Motive to Author and Statement

The question of how beliefs and feelings are changed has been a persistent problem in social psychology. Clearly, the question is important, for an answer would also provide information on such related problems as conformity, uniformity of ideas, and persuasion.

It has been known all along that people change their ideas, not necessarily all at once, but subtly and unconsciously. It was once felt that these changes were brought about in a mechanical, thoughtless, and irrational fashion. However, Asch (*1*) showed experimentally that changes in beliefs and ideas are not mechanical and irrational, but that cognitive factors are involved.

As an example, one finds a higher degree of acceptance for the statement "There is nothing sacred about the American Constitution. If it doesn't serve its purpose it should be changed as often as necessary" when it is attributed to Franklin D. Roosevelt instead of to Earl Browder. Asch's contribution was to show clearly that, with the change in attribution,