Letters to the Editor

CO_2 Baths

R. R. McGregor (*Science*, 1945, **102**, 648) spoke of the use of silicone stopcock grease as a means of preventing the foaming in acetone-carbon dioxide "Dry Ice" baths.

His article brought up several points of interest to me, and possibly to other readers. He says that, because of the tendency to foam, "open flames in the vicinity may cause bad fires." The obvious answer to this is to use, as this laboratory does, other noninflammable liquids. We use a commercial brand of trichloroethylene, called "Triad" (DuPont Co.), as degreaser solvent. This solvent will not support combustion, gives all the effects that acetone does with "Dry Ice," and therefore has none of the fire hazards of acetone.

In several simple experiments after reading Mr. McGregor's article, it was found out that if the acetone is reasonably clean it will not foam anyway. In another experiment, the effect of silicone grease on trichloroethylene was determined. In this solvent, instead of cutting down the foaming—trichloroethylene will foam badly, too, at first, if it has been used repeatedly—the silicone increased it manyfold.

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The Age of Lake Cahuilla

Lake Cahuilla is the name given by W. P. Blake to a very large shallow lake, covering an area of about 2,200 square miles, which formerly existed in the region of the present Colorado Desert. Long ago it dried up, leaving on the surface of the soil millions of fresh-water shells, both univalves and clams, of several different species. These species are living today, in much smaller numbers, in various parts of the west.

Much discussion has recently arisen concerning the age of this lake, some geologists thinking it might have existed as recently as 500 to 1,000 years ago. The end of the Pliocene period in California is not strongly marked in the marine formations, but on land or in the fresh waters it is abrupt, suggesting a considerable time interval. All the Pliocene birds are extinct; the Pliocene fresh-water shells described by Pilsbry are nearly all extinct, the exceptions being a few uncharacteristic forms; the Pliocene plants are regarded as extinct, though to some extent this is a matter of convention, the scanty remains showing no appreciable difference in several cases from living species. When we come to compare the next period, the Pleistocene, with the Recent, there is no such break. It is not unreasonable to say that we are still living in the Pleistocene. Hence, when we dispute whether Lake Cahuilla is Pleistocene or Recent (Holocene), the decision may not be evident. But during the Pleistocene, as is now well known, there were wet (pluvial) periods, alternating with relatively dry ones, and no doubt these vicissitudes had much to do with the extinction of various elements of the fauna and flora. The last of these pluvial periods, near the end of the Pleistocene, seems to be the period of Lake Cahuilla.

We seem to have various evidences of this pluvial period in southern California. The fauna of the tar pits at Los Angeles, including large herbivorous animals, such as elephants and mastodons, could hardly have been supported by such vegetation as now exists in the region. The subfossil land snails on the islands off the coast, especially San Nicolas Island, are so abundant as to suggest abundant vegetation, though it is true that the present denuded condition of the islands is largely due to the grazing of sheep. But Lake Cahuilla itself seems to furnish evidence of a pluvial period of long duration. Such a large shallow lake, supporting an enormous population of mollusks, must have existed for a long period, but it remained strictly fresh water until near the end of its existence, when the marine genus *Acteocina* appeared. This genus is represented, sparingly, by a minute species, which Willett described as new. Now the Salton Sea was formed as recently as 1905, when the Colorado River flooded the Salton Sink, an area below sea level. It is the fresh water which makes the sea salt, as the result of evaporation, and under present climatic conditions the Salton Sea has now become as salt as the ocean. It does not seem possible that Lake Cahuilla could have remained fresh under climatic conditions such as exist today.

More study of Lake Cahuilla is needed, and interesting discoveries may be made. Dr. W. O. Gregg writes that he has found an additional mollusk in the deposit, *Pyrgulopsis nevadensis* (Stearns), and suggests that still others may be found.

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A Critique of the "Exact" Natural Sciences

The current widespread discussions on the subject of the proposed science legislation have brought forth again the old problem of the "exact" natural sciences and the "inexact" social studies. At the risk of incurring wrath from both sides, I should like to state a view which, unfortunately, has not been generally considered.

The apparent basis for the argument is that the "exact" sciences deal with subjects and materials which are under rigorous experimental control of the investigator, while the "inexact" sciences are mainly concerned with the irrational and, at times, irresponsible activity of a mass of individuals amenable only to a statistical treatment. The apparently rather general acceptance of this state of affairs leads one to consider the actual