mens were small, and, if I remember correctly, the one left-handed individual was approximately three inches long. The specimen was made a part of the New York State Conservation Department collection and is presumably preserved at the New York State Museum at Albany, New York.

It is of interest to note that of the four recorded instances of reversal in this flounder, two specimens have been taken in Shinnecock Bay.

S. C. BISHOP

University of Rochester

The Coloration of Acid Earths Caused by Vitamin A

In some recent issues of *Science* there appeared an interesting discussion concerning the specificity and the history of the intense blue coloration given by vitamin A solutions on acid earths (A. Lowman, *Science*, 1945, **101**, 183; H. R. Kreider, 1945, **101**, 377; L. Zechmeister and A. Sandoval, 1945, **101**, 585; G. G. Mayer and H. Sobotka, 1945, **101**, 695; *cf.* P. Meunier, *C. R. Acad. Sci., Paris*, 1942, **215**, 470). It was pointed out by Mayer and Sobotka that the observation of this reaction goes back to the year 1939, when it was described by A. Emmerie and C. Engel (*Rec. trav. chim. Pays-Bas*, 1939, **58**, 283). Actually these investigators were not the first ones who observed the reaction mentioned. In 1927 K. Kobayashi and K. Yamamoto (*Chem. Zentralbl.*, 1928, **22**, 2397; *cf. Mem. Fac. Sci. Eng., Tokyo*, 1927, **4**, 23) reported that vitamin A-containing materials, like cod liver oil, give intense bluish or greenish reactions on Japanese clay, Florida earths, or fuller's earth if a benzene or carbon tetrachloride or carbon disulfide solution is applied. They also correctly attributed this reaction to the vitamin A content of the materials investigated.

HENRY M. ESPOY

Van Camp Laboratories
Terminal Island, California

Preservation of Biological Specimens With Clarite X

A large number of papers have appeared on the preservation of animals by methacrylate resins, but the methods used are difficult and expensive. Very few experiments seem to have been made using other plastics or resins. M. D. Wheatley (*Science*, 1941, **94**, 49–50) proposed coating specimens with a solution of isobutyl methacrylate in toluene.

The writer found solutions of *Clarite X* in xylene a satisfactory coating for small animals (spiders, nymphs of Hemiptera, small caterpillars). The specimens were pinned and placed in 95-per cent alcohol, then in absolute alcohol. After a short immersion in xylene they were placed in a solution of 30-per cent *Clarite X* crystals in xylene for about two hours and then left to dry. The resin left a clear coating on the animal. No evidence of excessive shrinkage was observed. The color was preserved better than in the case of specimens kept in alcohol. The specimens were brittle but not much more so than pinned insects. A small addition of paraffin to the resin solution might make the resin less brittle without changing its other properties.

Clarite X, described as a cycloparaffin, may be obtained from the Neville Company, Pittsburgh, Pennsylvania, to which the writer is indebted for supplying samples of the resin for the experiments.

HERBERT W. LEVI

University of Connecticut

Algae in the Carlsbad Caverns, New Mexico

About two years ago there began to appear in the Carlsbad Caverns, on the pale-grayish limestone wall of the corridor opposite the bottom of the elevator shaft, a slight spotted greenish cast, which in time spread and brightened to a lettuce or grass-green color, not very dissimilar in appearance from the copper carbonate, malachite. It is not copper, however, even though such a supposition is reasonable, for sporadic copper stains are common over a wide area of the Guadalupe Mountains. It is caused by algae, chlorophyl-bearing plants, growing 750 feet below the surface where none have ever been seen before. There are two algae, a green and a blue-green—one an extremely fine aggregate or cluster of bright green cells, the other a pale green, fibrous form. Their habits are such that even their genera can be determined only with difficulty.

The events which have led to the growth of these plants deep down in the cavern are unusual. By December 1931 the elevator shaft was completed through 750 feet of limestone to the floor of the Lunch Room, and elevator service was begun. The corridor leading to the elevator doors was hewn out of solid limestone which was then dry and remained so for more than a decade. Over the elevator doors there was installed an electric light which has been kept burning for about seven hours each day ever since. No change was noticed until sometime in 1943, when a greenish color was first observed to be forming as faint blotches on the rock wall, and this brought to attention the fact that the rock was becoming moist.

To understand this situation better, let us examine certain local events of 1941 which may suggest a cause for the appearance of the algae. In May of that year a torrential rain fell in the Guadalupe Mountains and the surrounding area, which flooded the Pecos River and those of its tributaries heading in the Guadalupe Mountains. On 20 September an even greater deluge fell. Such storms are the result of an enormous accumulation of great, bulbous, cumulo-nimbus clouds which extend from the very ground to altitudes of more than 25,000 feet. To one who has experienced such storms in the field it seems as if the whole column of 25,000 feet of moisture overhead has condensed at the same moment. The Carson Seep Ranger Station reported 17 inches of rain, most of which had fallen in a few hours. During this storm 21.25 inches of rain fell at the headwaters of Dark Canyon, by far the greatest on record in the climatological history of New Mexico.

Though the percentage of run-off on a rocky terrain such as the Guadalupe Mountains is high, these two exceptional rainfalls produced such a notable recharge of

ground moisture that in the Fall of 1944 there came a stand of grama grass and other forage in the Pecos Valley the like of which had not been seen for forty years. In some pastures this luxurious display was due also to beneficial results of the Taylor Grazing Act, which has permitted the more sagacious cattlemen properly to husband their ranges.

It is believed that this increment of moisture, overcharging a perched watertable, has found a hitherto unused course through some 500 to 800 feet of rock and, after two years, is seeping out to moisten the rock wall of the corridor. Along with the water may have come the spores of algae; or possibly they were carried in by visitors to the cavern or by down-draft air currents in the elevator shaft. Whatever the mode of their introduction, germination was not possible until both light and water were available. Here in this cavernous void of total darkness no chlorophyl plant life has ever before penetrated so deeply below the surface and survived.

At the Devil's Pool, along the pathway leading down into the cavern from the Auditorium, an electric lamp illuminates for an hour or so each day a large moist stalagmite. A year ago a thin, hard, dark-green coating formed on the stalagmite that is probably the blue-green alga, *Schizothrix*. (In the Fall of 1945 it was noticed that the rock wall at the elevator shaft had grown drier and that the algae are shrinking into clusters. Algae are also to be seen now at the Green Lake and in the King's Palace.)

The only large display of algae growing under natural conditions is that found on the floor of the tunnel leading to the guano cave, 180 feet below the entrance. A cylinder of light, at times partly direct sunlight, projects down onto the rock-strewn floor. Within the circle of light a dull-greyish, black dirt appears to cover the debris. It suggests nothing living and gives rather the impression of being dusty, dead moss. A sample of it sent to Dr. Wm. Randolph Taylor was pronounced a blue-green alga, possibly *Gloeocapsa*, a simple-celled colonial form. This is probably the only place where daylight enters the cavern in sufficient amount to support the growth of a chlorophyl-bearing plant.

(Published by permission of the Director, Geological Survey, U. S. Department of the Interior.)

WALTER B. LANG

Geological Survey
U. S. Department of the Interior

What Is the Matter With *Science*?

How is it that, six months after the first atomic bomb was dropped on Hiroshima—and on the world—neither its editors nor, apparently, any of its contributors, have made any serious and responsible effort to discuss the immense scientific, technical, and social ramifications of this event? Apart from the Truman statement—a document of minor scientific importance—some timely comment by Niels Bohr and Harold Urey, and a letter by Gordon F. Hull, this official journal of American scientists goes along as though nothing particularly out of the ordinary has happened.

A public interest, unprecedented in scope and magnitude, has been generated by the concrete realization of possibilities which a few years ago were shadowy dreams in the minds of men whose very language was an enigma to most of us. In Congress, on the radio, in magazines, books, lectures, and endless discussions, the question of atomic energy has assumed a grim and ruthless primacy, upon whose right solution depend the patterns of human development—conceivably, even, of human survival. Nor can it be said that this urgent public concern is merely another example of mass hysteria that will soon pass, because, this time, it originates in a fundamental scientific discovery that almost overnight has inscribed *mene mene tekel upharsin* upon the walls of our current civilization. Within the past weeks men like Oppenheimer, Szilard, Urey, Langmuir, Smyth, Langsdorf, Shapley, and many others have come out of seclusion and made headlines by their courageous, public-spirited response to the social outcome of their patient researches in nuclear physics. With a heartening unanimity these disciplined and sober minds have recognized the imperative need for thinking in terms of broad human objectives, in sharp opposition to a disgraceful chauvinistic nationalism whose conception of the method and purposes of science belongs on the level of Neanderthal man. Their own organization, the Federation of Atomic Scientists, is active in the promotion of a sane international handling of the myriad problems arising from their work, and quite recently a section of the American Physical Society has gone on record in favor of United Nations control of the atomic bomb.

Yet, so far, *Science* has nothing to say. Why is this? Are the editors themselves indifferent, or do they assume that the question of atomic energy is either too "secret" or too well known to deserve extended discussion? Can they find nothing to publish regarding developments in nuclear physics here and abroad, no statements by foreign scientists that go beyond trifling generalities, no simple and forthright reporting of events in this now-dominant field? Or is it that contributors simply do not care to write anything on the subject for their own magazine—something that will tell other scientists, as well as intelligent laymen, what they are doing and thinking, what the problems are and how they may best be approached with a hope of solution?

Whatever the answer, it seems to me that *Science*, in this matter, is lagging badly in what would appear to be one of its obligations: the prompt, intelligent, and reasonably adequate treatment of what J. D. Bernal has called "the social function of science." I say this without prejudice to the many vital and significant contributions that have appeared in its columns, and with due regard to editorial limitations of space, budget, etc. But I think it needs to be said, and reiterated, now more than ever, when thousands of plain folk are becoming vividly conscious of the enormous power wielded by scientists in our delicately balanced world. I think that the scientists themselves need to know it, to say it, to hear it said, over and over again, for I am convinced, on the basis of the way they have reacted to