quarters of the Academy of Medicine, in the rue des Saints-Pères, which were abandoned thirty years ago for the new magnificent quarters that it now occupies in the rue Bonaparte, have been undergoing some much needed repairs. The discoveries that have been made in the old quarters occupied by the academy for ninety years awaken surprise. The small hall in which the council met had a low ceiling and presented a paradoxical state of uncleanliness. When the academy moved to its new quarters, the old dusty carpet that covered the floor of this sanctuary was taken up. Under this carpet was found another carpet, also worn and even more dusty than the top carpet. Under the second carpet was found a third, and, the excavations being continued, ten old carpets, none of which appeared to have been ever subjected to a cleaning process, during the time that successive generations of venerable savants—from Depuytren to Pasteur and Dr. Roux—had passed over them, were removed! What a haunt for streptococci, staphylococci and tubercle bacilli the Academy of Medicine had become! And from these environs were promulgated by the great apostles of hygiene the far-reaching precepts of antisepsis. However, they all died at an advanced age, without their health having been impaired in the slightest by this uncleanliness. But they spent only a few hours each week in this environment."

DISCUSSION

"RED WATER" IN LA JOLLA BAY IN 1933

To those familiar with the ocean, it is well known that its colors are not uniform or constant. This is especially true of coastal and of relatively shallow waters. For a century or more, it has been known that changes of color are often caused by the presence of vast multitudes of small organisms, some of microscopic size. It is also fairly well known to some observers that changes of color due to particular types of organisms occur more frequently in some regions than in others.

In the San Diego region of Southern California, records of occurrence of "red water" caused by the presence of the microscopic organisms called "dinoflagellates" are rather few, instances having been reported for 1901,[1] 1907[2], 1917,[3] 1924[4] and in the present case for 1933. While it is not probable that these reports cover all, or nearly all, of the occurrences of "red water" in Southern California seas in a period of more than thirty years, it is probable that they do give a fairly good impression of the rarity of conspicuous occurrences.

In 1933, water of a "dirty red" or "muddy red" tinge was noticed near the pier of the Scripps Institution of Oceanography on May 17. On May 18, I began giving it a considerable amount of personal attention, terminated by the marked reduction of discoloration on May 31. On several of the fourteen days of occurrence the discoloration appeared to be nearly uniform in a zone of water within a half mile of shore over a distance of at least three miles around the shores of La Jolla Bay. On other days it appeared streaky, probably due in part to more wind disturbance. Fish seemed to act much as usual in this water, giving no observable indication of response to changes in oxygen content (not tested) or other derangements which might be suspected to occur.

On most days of the fourteen, I examined microscopically two kinds of samples, one obtained for another purpose by my assistant, Miss Easter Cupp, by filtering several gallons of water through No. 25 silk bolting cloth, the other obtained by merely dipping up the water without any kind of treatment. Regular daily catches were taken also by a settling method, but these were not examined microscopically.

The filtration samples were examined only under a binocular dissecting microscope. They showed a very great preponderance of dinoflagellates for a few days, a nearly equal occurrence of diatoms and dinoflagellates for two or three days, and a return to strong preponderance of dinoflagellates for the remaining time. On a number of days *Ceratium tripos* (O. F. M.) appeared to be the leading dinoflagellate, both volumetrically and numerically, although there were large numbers of species of *Peridinium* and of other species of *Ceratium* in each catch. However, in all catches there were such large numbers of the much smaller *Prorocentrum micans* Ehr. that it was very doubtful that the numbers of *Ceratium* were greatest in any case. The conspicuous golden yellow color of *Prorocentrum* also suggested the probability that it would contribute more than its share (quantitatively) to discoloration of the sea.

From the untreated samples I took single drops (roughly measured by pipette) and examined them *in toto* under the compound microscope. In some of them I found thirty to eighty specimens of *Prorocentrum* with no other organisms present. In most

[1] H. B. Torrey, *Amer. Nat.*, 36: 187–192, 1902.
[2] C. A. Kofoid, *Univ. Calif. Publ. Zool.*, 8: 187–286, 1911.
[3] W. E. Allen, *Special publ. Bernice P. Bishop Museum*, 7, 537–554. 1921.
[4] W. E. Allen, *Bull. Scripps Inst. Oceanog.*, Tech. Ser., 1: 347–356, 1928.

catches from one to six other forms were present (three species of diatoms and three species of dinoflagellates in one). The largest number of *Ceratium tripos* found in a single drop was two, but the number of *Prorocentrum* in that drop was 146. The general evidence of drop studies of the fourteen days suggests that the ratio of numerical representation of the two leading species was about fifty to one in favor of the smaller form.

These experiences show distinctly the unreliability of results of treating differing organisms alike, and the futility of applying methods of handling to those of smaller size merely because they have been successful with those of larger size and are convenient. They also show the possibility that *Prorocentrum* is more frequently prominent in production of "red water" than reports have indicated.

Worm larvae of undetermined affinities were the only animals actually seen using *Prorocentrum* for food. Many of them were gorged with intact specimens.

In the tall tubes used for daily collecting by the settling method, it was noted that a large percentage of killed material was held by the surface films and by the sides of the tubes. Microscopic examination of some of the supported particles showed them to consist mainly of clumps of three to six *Prorocentrums,* a most convincing illustration of the way in which agglutination or adhesiveness of small organisms may reduce accuracy of collecting by any method.

Because of their general interest these points are presented for publication now, since it is improbable that a full report can be prepared soon.

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INTERBED—A CONVENIENT STRATIGRAPHIC EXPRESSION

SEDIMENTARY formations are commonly made up of one dominant rock type in which occur interbedded layers of distinctive lithology; a shale formation may contain interbedded limestone layers; a sandstone may include interbedded shales. In many cases each interbedded layer consists of a single bed, an inch or more in thickness. Where such thin layers of different lithology are regularly and repeatedly interbedded a banded appearance is attained. In stratigraphic description these features have been referred to as "interbedded layers" or "intercalated beds," or some such expression that, when frequently repeated, as is necessary in some cases, becomes exceedingly awkward. In their place the term "interbed" can be used to advantage.

An interbed is strictly a single bed lying between other beds from which it differs somewhat in lithology. The term can be used for more than one bed in the case of thinly laminated layers of small thickness, such as shale interbeds. It does not refer to a collection of beds that on account of their thickness or continuity can properly be called a tongue, a member or a formation.

Fossiliferous limestone interbeds occur in a late Ordovician series near Matapedia, Quebec, and it was to facilitate reference to these important layers that I first had occasion to use the word. In the form of a noun, "interbed" can be modified by descriptive adjectives which appear cumbersome when used with the adjective "interbedded." The expression "varve-like interbeds" has been used by C. L. Baker in describing portions of the Haymond formation in western Texas.[1] To my knowledge this is the only occasion that the expression "interbed" has appeared in print.

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ON THE EFFECT OF MOCCASIN VENOM UPON A RATTLESNAKE

LITTLE or no definite information on inter-generic or inter-specific venom susceptibility among American crotalid snakes seems to be available. Beyond a few brief and general comments, such as "poisonous snakes are immune to their own venoms and to the venoms of each other" and "snakes are immune to the venom of their own species but may be susceptible to that of a closely related species," the literature is silent on this subject. As a matter of general interest, and because of its suggestiveness in this little-worked field, it seems desirable to record an instance in which the venom of a cottonmouth moccasin, *Agkistrodon piscivorus* (Lacepede), is known to have been fatal to a rattlesnake, *Crotalus atrox* Baird and Girard.

In connection with a demonstration of venomous snakes for a boy scout troop about 9:15 P. M., November 18, 1932, a four-foot western diamond rattlesnake was severely bitten by a thirty-inch cottonmouth, as the former was being lifted from a box in which both had been confined. The bite was lateral in position and about five inches anterior to the tail. Both fangs of the moccasin are thought to have penetrated the body of the rattlesnake, although the punctures could not be found. Little attention was given to the matter at the time, but the following morning, when the snakes were returned to their enclosures in an animal room of the Zoological Laboratories, it was noticed that the body of the rattlesnake was swollen near the region of the bite and that the skin visible between the scales was of a dark

[1] C. L. Baker, "Erratics and Arkoses in the Middle Pennsylvania Haymond Formation of the Marathon Area, Trans-Pecos, Texas," *Jour. Geol.*, xl: 580, 1932.