

a driver, who knew how he was facing, when color could not.

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THE UNDERTOW MYTH

I AM very glad indeed to see the undertow myth exposed. For many years I lived in Evanston, Illinois, on the shores of Lake Michigan, in which I used to swim a great deal. Solicitous friends and relatives (most of them non-swimmers or very poor swimmers) took it upon themselves on innumerable occasions to caution me against the "strong and treacherous undertow" which they said was present, especially during rough weather. Many a time when the waves were dashing very high I have taken my usual swim with but little fear, believing that if I were carried out by this mysterious undertow I would be able to swim up to the surface where, all are agreed, there is no outward flow; for the water could not be towing away from the shore on the bottom and at the surface simultaneously. If this were the case all the water along the shore would recede and pile up in the direction of the center of the lake. After "taking my life in my hands" on many occasions during many summers, I came to the conclusion that, as far as I was concerned, undertow even in stormy weather was nonexistent along the shores of Lake Michigan. In fact, it always seemed to me that the pounding waves hurled me toward the shore with a force a little greater than any I could detect pulling me out to sea; but I never reasoned the problem out thoroughly, as Davis has in a recent issue of *SCIENCE*. I used to think that this phenomenon might be manifest on shores where the slope of the bottom is very steep and complicated also perhaps by tides. Now, however, after studying Davis's article and after reviewing my own experience in rough water, I am convinced that undertow is a myth. Davis's theory that it has arisen from the fear and confusion of people not accustomed to big waves seems to me more than plausible.

As requested by Davis, I will add the following information: I am almost as much at home in deep water as I am on dry land. The slope of the floor of Lake Michigan near the shore is not steep. The direction of the wind, as far as I can recollect, was usually toward the shore. When I used to swim in Lake Michigan I never made a critical study of wave movements at the time. This communication is merely a "memory record." However, I did go into the lake many times in stormy weather at places where an undertow was said to exist and I never was able to detect it.

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A QUOTATION FROM HIPPOCRATES

To the charge that one has not accorded due honor to Hippocrates, one may not remain silent even if defense is both presumptuous and impossible. In an address (*SCIENCE*, September 5, 1924) use was made of the wording on a tablet on one of the Harvard Medical School buildings. It was of exactly that type of monumental inscription that America is accustomed to receive from Dr. Eliot's pen. Dr. Eliot did, indeed, furnish the particular phrasing used, hence I accepted without question the statement that he had written it.

Several letters from friends calling my attention to the fact that the inscription is a translation from Hippocrates, an anonymous letter on the same subject, and the recent distress of the writer in *SCIENCE* (February 13, 1925, page 184) deepen my chagrin at my ignorance. Had I not been ignorant, however, I could not have made an ultra-modern interpretation of the inscription; an interpretation which many appreciative letters indicate has been helpful.

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"TUMBLING" IN A WILD MOURNING DOVE

THIRTY years ago my wife and I observed "tumbling" in a wild mourning dove. A description of the observation was sent to Dr. C. O. Whitman and its receipt acknowledged by him, but, so far as I know, he never made use of the data or made these known. I will give the data here from memory.

We were driving north over flat open country. Mourning doves were flying from the northwest to a "pigeon roost" southeast of us, in a dense apple orchard which had grown up from an abandoned nursery. The tumbling bird was first noticed a sixth of a mile in front of us and to the left of the road. I thought the bird had been shot and hit and I waited for the report of the gun, but none came. The bird balked, fell over backward fluttering, dropped say fifteen feet, recovered and flew on. When no gun report was heard we wondered if the bird might have struck a wire, but saw none in the field where the bird had been. The bird crossed the road an eighth of a mile in front of us and flew diagonally past us at a distance of about a tenth of a mile and disappeared behind and to the right of us. Twice more it tumbled in full view, though at distances of one tenth and one eighth of a mile. Each time the behavior was the same—balking, a fluttering backward fall, recovery while still well above the ground and a renewal of flight. I had not at that time seen tumbler pigeons in flight. When later I did see them their behavior impressed me as similar to that of the wild dove.

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