

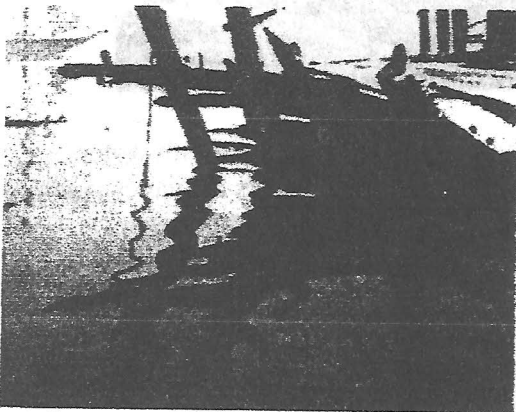
## REFLECTIONS ON WATER

- By itself, water is colorless
- The color it seems to have is made up partly of what we can see *through* it but *mostly of what it reflects*.
- Since it normally presents a level surface to the sky, its apparent color is most often related to that of the sky. Clear, deep water, on a clear day, looks blue. When it is shallow and nearby, the same water takes part of its color from light reflected up from the bed below—sand or rock or mud or seaweed or whatever. If the water is not clear, its *actual* color may be modified by its content of silt or algae—but it still gets most of its light from the sky and its *apparent* color principally from reflecting that light.

### LAWS OF REFLECTION

Water scenes are usually in conjunction with other objects—trees, grasses, rocks along the riverbank; boats, wharves, ledges along the shore; etc. Reflections of these things, therefore, enter into many pictures more importantly than the water itself.

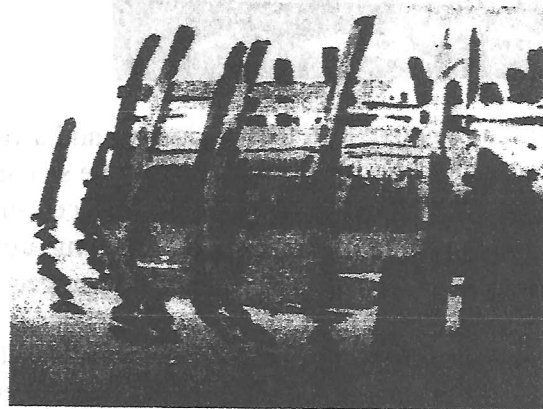
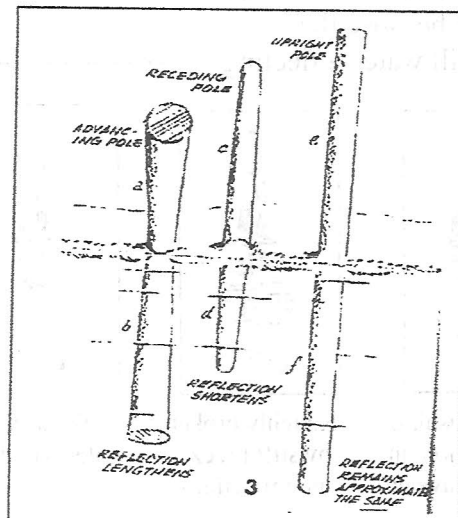
The laws of reflections govern the shapes of the reflections of objects. The two pictures below show how the reflections of leaning objects differ from those of vertical ones.



Piles lean to left and toward observer

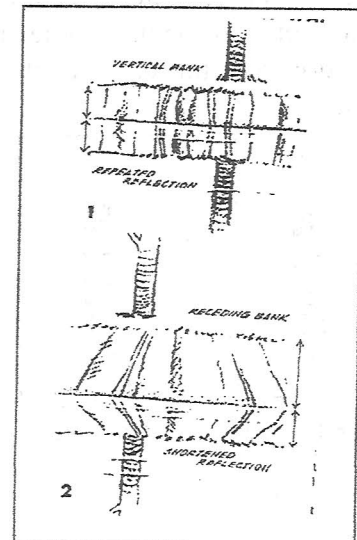
Since the reflection of each point comes to the eye through a plane perpendicular to the reflecting surface, it is easy to understand that the reflection of the whole pile will also lean to the left.

What may not be so easy, but is important to observe and remember, is that the reflections of things leaning towards you extend out and become longer than the objects themselves appear.



Piling slopes away

Conversely, on the right, where the piling slopes away from the observer, the reflections are shorter than the piles themselves appear.



## TONES OF THE WATER

In both pictures above, the water surface is made very light where it is far away and darker in the foreground. This is because out yonder it reflects the low, lighter part of the sky; while close to shore, where the wavelets appear bigger; they pick up the darker color from the sky above. Furthermore, with the greater angle of incidence (since we are looking *down* at it), the foreground water transmits some of the color of the bottom.

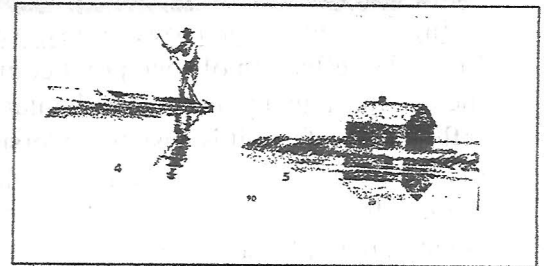
Looking out across a body of water, we are likely to notice that some parts of the surface are smooth while others are ruffled by wind. *It is reflections that tell us which parts are rough and which smooth!* Smooth water reflects the sky mirror-like while rough water picks up and relays to our eyes the light from many directions, either darker or lighter than the sky, depending on prevailing conditions.



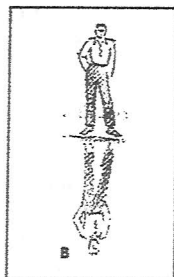
In the picture above left, the sun is high and away from us, and the sky is blue. A smooth water surface would reflect only the sky, but the sea has been disturbed so that thousands of waves catch the glitter of the sun on their sloping surfaces and dazzle us with their combined reflections. Darker streaks cross the brilliantly sparkling area. These are patches of smoother water which reflect the sky rather than the sun. The perspective effect is accented by these patches being narrower and closer together as they recede.

In the picture above right, the conditions are different. The sky is dark overhead and a bright cloud lights up the distant sky. The smooth water reflects the cloud, and is light, while the streaks of ripples pick up the sky color above them and seem darker.

The illustration to the right demonstrates the reflection of still versus disturbed water. We know that the water is disturbed in the sketch of the man, pole and the boat because the reflection is disturbed, in contrast to the still water reflecting the house.



Water disturbed  
but not  
windblown



Still water



Water pushing  
toward shore in  
parallel wavelets



Roughly broken  
by stiff breeze.  
no reflections

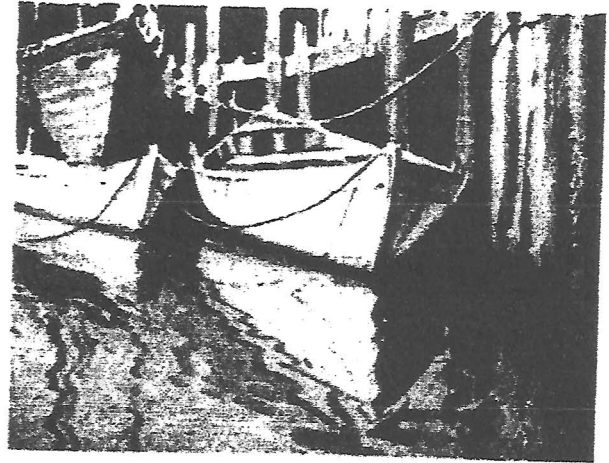
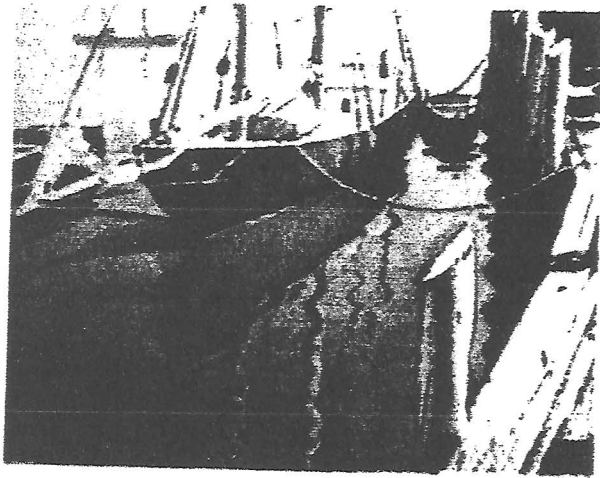


Only portion of  
water windblown



Swift currents  
break reflection  
(stream vs. lake)

## TONES OF THE REFLECTION



The two illustrations above show how the reflections of boats, etc., are affected by the angle of sunlight. When the sun is high, as in the picture on the left, the reflection is lighter than the dark boat, since the water surface picks up some light from the sky above. When the sun is low, as on the right, and strikes full on the sides of the light boats, the reflections will be somewhat darker than the boats. This fact is worth remembering.