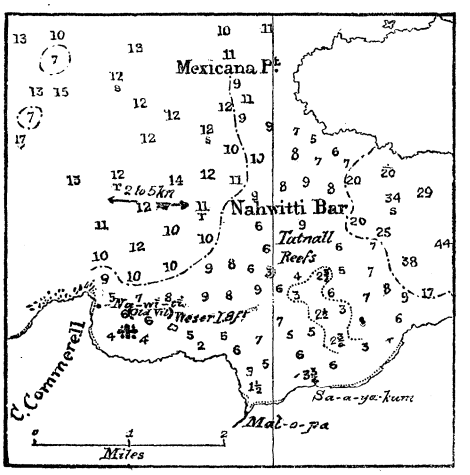
Though moderately well sheltered, the little bay at Na-wi-ti is stated in the *Vancouver pilot* to be unsuited for an anchorage by reason of its rocky bottom. It is nevertheless the first place on the north shore in which a seaman would naturally seek for an anchorage after rounding Cape Scott in the absence of a chart, and was, besides, adapted to the purpose of the traders as being the site of a large village. The mention by Cox of a bar over which a strong tide runs, again agrees with the fact of the existence of the notable 'Nahwitti Bar' of the charts, of which the writer had a somewhat perilous experience ten years ago, while bars are not found at the entrances of Nootka or Clayoquot sounds.

When at Na-wi-ti in 1885, I learned from the Indians that some disastrous event had happened at this place, but could not learn its precise nature. Dr. Franz Boas informs me that he also was unable to gather any thing definite on the subject from the natives. It is probable, however, that the shelling



of this village by a gunboat, which occurred about forty years after the loss of the Tonquin, may have since become confounded with that event, if it really happened at this place.

The point at which the Tonquin is supposed to have been destroyed is indicated by the asterisk on the accompanying plan, which is based on Admiralty chart No. 582. George M. Dawson.

Geol. surv. Can., March 30.

A sensitive wind-vane.

The liquid damper suggested by 'T. C. M.' in *Science*, No. 217, certainly furnishes a complete and satisfactory solution of the wind-vane problem. This device is a customary method of checking oscillations, and its application to the wind-vane was made about ten years ago by Mr. J. W. Osborne, who constructed and used such an apparatus (*Amer. assoc. report*, 1878). His definition of an ideal vane agrees entirely with the conditions laid down by Professor Mendenhall, and is worth quoting: "A perfect wind-vane should instantly respond to the slightest change in the direction of the wind, and should remain stationary when it has made the necessary angular movement."

A single, but perhaps not unimportant, exception may be taken to Professor Mendenhall's solution,—"to use a *small* and extremely light vane." Lightness is, of course, a desideratum in order to reduce friction, but length is also requisite in order to give sufficient gyratory force for very light winds. The vane may be extremely light, and yet not small. Mr. Osborne's vane, designed to realize his definition, was *seven feet long*, and weighed only three ounces. Sensitiveness is increased, 1°, by increasing the moment of rotation; 2°, by diminishing the friction. An addition to the length of a vane, if it is of light material and mounted on friction-rollers, may add more to the sensitiveness by increasing the moment of rotation than it will subtract by increasing the friction. G. E. Curtis.

Washington, D.C., April 4.

The difficulties which have been discussed in the last few numbers of *Science* in regard to a sensitive wind-vane are avoided at Blue Hill observatory by having the wind-vane self-recording.

The recording is by the Draper method; viz., a cylinder is attached to the spindle of the vane, and a stationary pencil (except that it is slowly dropped by clock-work) records the oscillations of the wind on the cylinder. The vane is thin metal, has a divided tail, and is sensitive to the lightest wind. In order to determine the direction of the lightest or most violent wind, a line is drawn through the centre of the oscillations recorded on the cylinder. It is not uncommon for scud-clouds to drive by almost touching the top of Blue Hill; and, by means of a mirror devised for measuring cloud-movements, their motion can be determined within one or two degrees of arc. I have made a number of such measurements, and find that they correspond almost exactly with the centre of the wind-oscillations on the cylinder, determined in degrees of arc.

This method of recording the wind-direction is simple, accurate, and easily managed, and I do not think it would cost very much more than the method Professor Mendenhall suggests of fitting up the vane. Hence I hope, if improvements in wind-vanes are attempted by the signal service, they will turn their attention to the very desirable method of continuous registration. H. Helm Clayton.

Blue Hill meteor. observ., April 3.

Physiology of plants.

I notice that in a review in *Nature* of the 26th of August, 1886 (p. 381), of Dr. Vines's 'Lectures on the physiology of plants,' it is stated that the view that "the cell-wall is produced by the actual conversion of a layer of protoplasm," and that "the starch which is formed in chlorophyll corpuscles under the influence of light is also the product of such a dissociation of protoplasm," is "the most striking novelty which will be found by English readers" in Dr. Vines's book, "and, though propounded some years ago in Germany, has now, we believe, appeared for the first time in an English text-book."

In reference to this, will you kindly allow me to point out that the above view was propounded by myself, and will be found fully set forth, along with an explanation of the chemical reactions involved, on pp. 218–223 of my book, 'Light the dominant force of the universe' (London, Sampson Low & Co., 1882). W. Sedgwick.

Calcutta, Feb. 15.