THE BEHRING'S STRAITS CURRENTS.

It will be remembered that a short time since, we mentioned the fact that W. H. Dall, of the U. S. Coast Survey, who has passed a number of years in Alaskan waters, on Coast Survey duty, denied the existence of any branch of the Kuro-Shiwo, or Japanese warm stream, in Behring's straits. That is, he failed to find evidence of the existence of any such current, although he had made careful observations. At the islands in Behring's straits, his vessel had tailed in opposite directions with ebb and flood tide, and he thought the only currents there were tidal in their nature. The existence or non-existence of this current is an important point in Arctic research on this side of the continent.

At the last meeting of the Academy of Sciences, Prof. Davidson, of the U. S. Coast Survey, author of the "Alaska Coast Pilot," refuted Dr. Dall's opinion of the non-existence of a branch of the Kuro-Shiwo, or Japanese warm stream, from the north Pacific into the Arctic ocean, through Behring's strait. He said that in 1857 he gave to the Academy his own observations, and recently he had conferred with Capt. C. L. Hooper, who commanded the U. S. steamer, *Thomas Corwin*, employed as a revenue steam-cruiser in the Arctic and around the coast of Alaska. Capt. Hooper confirms the opinions of all previous navigators, every one of which, except Dr. Dall, say that a branch of this warm stream passed northward into the Arctic through Behring's strait. It is partly deflected by St. Lawrence island, and closely follows the coast on the Alaskan side, while a cold current comes out south, past East cape in Siberia, skirting the Asiatic shore past Kamschatka, and thence continues down the coast of China. He said ice often extended several miles seaward, from East cape on the Asiatic side of Behring strait, making what seamen call a false cape, and indicating cold water, while no such formation makes off on the American side, where the water is 12 degrees warmer than on the Asiatic shore off the Diomede islands, situated in the middle of Behring's strait, the current varies in intensity according to the wind.

Frequently it is almost nothing for several days, when after a series of southerly winds the shallow Arctic basin has been filled, under a heavy pressure, with an unusual volume of water, and a sudden change to northerly winds, makes even a small current setting southward for a few days, just as at times the surface currents set out our Golden Gate continuously for 24 and 48 hours, as shown by the United States coast survey tide gauges. Whalers report that the incoming water then flows in, under the temporary out-flowing stream.

Old trees, of a variety known to grow in tropical Japan, are floated into the Arctic basin as far as past Point Barrow, on the American side, but none are found on the Asiatic side, or near Wrangel Land, where a cold stream exists, and ice remains late in the season. On the northern side of the Aleutian islands are found cocoanut husks and other tropical productions stranded along the beaches. The American coast of Alaska has a much warmer climate than the Asiatic coast of Siberia, and the American timber-line extends very far north. The ice opens early in the season on the American side, and invariably late on the Asiatic.

Capt. C. L. Hooper says that when just north of Behring Strait, off the American coast, in the Arctic basin, the U. S. steamer *Thomas Corwin*, when becalmed for 24 hours, drifted 40 miles to the northward. From all these, and other facts, and the unanimous testimony of American whalemen, who have for years spent many months annually in the Arctic, and from his own observations, he argued that a branch of the Kuro-Shiwo, or Japanese warm stream, unquestionably runs northward through Behring's strait into the Arctic basin along the northwestern coast of Alaska.

Prof. Davidson then called to mind the testimony in regard to the existence of Plover island, between Herald island and Wrangel land, which he said was first made public through this academy. The evidence of Capts. Williams, Thomas and Long, were recited and highly praised. One of the officers of Admiral Rodgers' expedition climbed to near the top of Herald island, at a time of great refraction, when probably a false horizon existed, and hence did not see Plover island, although Wrangel land was in sight.

Prof. Davidson thinks all the authorities are against Dr. Dall, who attributes the warm current he observed on the American coast, to water from the Yukon river, and to the large expanse of shallow water exposed to the sun's rays. As Dall's observations only covered a few days of possibly exceptional weather, and the whalers, and Captain Hooper's cover vastly longer periods, and whalers all say it is a pretty hard thing to beat southward through Behring's strait, owing to the northerly current setting into the Arctic, we are forced to the conclusion that Dr. Dall has mistaken the exception for the rule, and his conclusions are therefore erroneous. When, in 1824, Wrangel went north, he, like others, always found broken ice and considerable open water. In 1867, when Capt. Thomas Long made his memorable survey of the coast of Wrangel land, the season was an exceptionally open one, and in California we had heavy rains, extending into July.—*Scientific Press.*

Minerals of the Pacific Coast.—Many persons have the impression that gold, silver, copper and quicksilver make up the sum of the mineral products of California. This is a mistake. Many other valuable minerals are abundant. Without regard to scientific classification, the following economic minerals may be mentioned, the localities of which are well known to mineralogists: Platinum, iridium, ores of lead, cobalt, tin, tellurium, molybdenum, chromium, antimony, bismuth, nickel, zinc, arsenic and iron; oxide, silicate and carbonate of manganese; red and yellow ocher, umber, carbonate and sulphate of baryta, limestones, marbles in many beautiful varieties, dolomite, hydraulic cement, gypsum, granite, syenite, porphyries, freestone, quartz sand, asbestos, mica, pegmatite, corundum, burh-stone, tripoli, diatomaceous earth, pumice stone, asphaltum, mineral oils, fluor spar, strontianite, carbonate of magnesia, carbonate of soda, salt, sulphur, tungstate of iron and of manganese, lignite, graphite, fire-clay, borax, boracic acid, besides gems and minerals valuable only for ornamental purposes, and perhaps others; and there are no doubt unknown mineral resources in the State that may develop into sources of wealth. It should be the policy of the State Mining Bureau to discover, investigate and bring them into notice.

Atomic weight is the weight of the atom of an element as compounded with that of the atom of another element, ascertained from the proportions by weight in which they combine; or, leaving out of view the hypothetical idea of an atom, it is the number expressing the proportions by weight in which the elements combine—one of the elements, either hydrogen or oxygen, being assumed as the unit for comparison with the others. Oxygen and hydrogen combine to form water in the ratio of 1 hydrogen to 8 of oxygen; and 1 and 8 are therefore the combining proportions of hydrogen and oxygen—also called, to avoid hypothesis, their combining equivalents.

The days are already passed for prospecting in the Wood River country—on horseback. Those who go to find mines must go prepared to dig under grass roots or sink on iron croppings for the rich deposits of galena which yield a return for all labor thus far rendered.

TOBACCO SMOKE.

In further research on this subject Dr. Le Bon finds that collidine, the new alkaloid existing in tobacco smoke, with other aromatic principles, and prussic acid, as well as nicotine, is a liquid of agreeable and very penetrating odor, and as poisonous as nicotine, the twentieth part of one drop sufficient to paralyze and kill a frog. It is the prussic acid and various aromatic principles that cause headache, giddiness and nausea in smoking certain tobaccoes that contain little nicotine. Other tobaccoes, rich in nicotine, have no such effects. The tobaccoes containing most prussic acid and collidine are those of Havana and the Levant. The dark semi-liquid matter which condenses in pipes and cigar-holders contains all the substances just named, as well as carbonate of ammonia, tarry and coloring matter, etc. It is very poisonous. Two or three drops of it will kill a small animal. The combustion of tobacco destroys but a small part of the nicotine, and most of this appears in the smoke. The proportion absorbed by smokers varies according to circumstances, but hardly ever falls below 50 centigrammes per 100 grammes of tobacco burnt. About the same quantity of ammonia is absorbed at the same time. Naturally, more of the poisonous principles are absorbed where the smoke is breathed (as in a room); less in the open air. A frog placed in a receiver containing a solution of nicotine, with about one drop of that substance to a little of water, succumbs in a few hours. Tobacco smoke contains about eight milliliters of carbonic oxide per 100 grammes of tobacco burnt. The poisonous properties of tobacco smoke are not due to this gas, as has been maintained in Germany.

Kerosene and Salt for Diphtheria.—A correspondent of the New York *Sun* says: In 1862, on a plantation in South Alabama, where there was great difficulty in securing good medical advice, I saw a whole plantation of blacks, as well as the white members of a large family, successfully treated for diphtheria with kerosene and salt, used thus: Every patient was given a lump of rock salt about the size of a boy's marble, and instructed to keep it in his or her mouth, swallowing the salty saliva. At the same time the throat was rubbed with kerosene oil, and a flannel saturated with kerosene kept around the neck until the symptoms were abated or entirely gone. If necessary, mild cathartics were given. Not a case was lost, and there were fully 150 in all on the plantation."

Treatment of Fetid Perspiration of the Feet.—A correspondent of the New York *Medical Record* writes: "As a recipe for fetid perspiration of the feet seems to be in order, and as I do not remember seeing mentioned one that never failed in my hands, I herewith send it: A 1% watery solution of permanganate of potassa. Bathe the feet in it night and morning, oftener if necessary, even to every hour, letting the feet dry after each bath without wiping. A stronger solution may at times be necessary; generally a weaker one will answer. The stronger the solution the greater the discoloration of the feet, but, as it is temporary, patients prefer it to the fetid moisture."

Dyeing Black.—Four ounces copperas and one ounce logwood extract to each pound of goods; dissolve the copperas in water sufficient to cover the goods; wet them in clean water before putting them in copperas water, to prevent spotting; boil them in the copperas water about 20 minutes; take them out, rinse in clear water first, then wash in soap-suds till it seems soft as before it was put in the copperas water; then put into the logwood dye and let it boil about 20 minutes; take out and let it dry; wash before it dries, or after, as is most convenient; it will neither crock, fade, nor grow rusty.

There is great want and misery in the State of Bolivia in consequence of the ravages of locusts on the cereals—especially rice and Indian corn.