inquire, by means of their mediums, whether what has been dictated to us has really been dictated by them, and whether its publication has been demanded. In obtaining this permission we were assured that the spirits would everywhere assert the truth of the fact. In case this event should take place, your worship will understand its weight and importance; and this is the reason why I, always in the name of science and humanity, ask you to bring together under your supervision competent and honest persons, and, employing known spiritualistic mediums, to call forth the spirits and ask them :—

1. Is it true that at Catania a perfectible spirit, by order of his prime spirit, has dictated a work which he wishes to be called 'Spiritualistic apocalypse'?

2. Are the premises established, and the consequences deduced, from the theories and principles dictated in this work the true ones?

3. Will this work be useful to humanity? And, further, all other questions which may be thought necessary to ascertain the truth.

I likewise pray and authorize you, in the name of my friends, to invite other scientific societies, and individual men of science, to make similar experiments, with the request that you will have the kindness to communicate to us the answers obtained.

In the hope of soon having the honor of seeing your handwriting,

I remain with all respect and obedience,
Yours devotedly,
ANTONINO SCAVO VITA.

Catania (Sicily), Jan. 20.

Montana climate.

The interesting notes of Dr. Dawson and Mr. Davis on the origin of the Chinook winds of the north-west are undoubtedly correct. Their characteristics are exactly those of the *foehn*. But Dr. Dawson limits the range of these winds too much. They extend at least as far south as the great western bend of the Rocky Mountain divide, north of Henry's Lake; and their tempering influences reach to the extreme boundary of Montana.

In recent climatological articles in *Science*, I notice several misleading references to 'Montana climate,' as if it were comparable, in steady, extreme cold, to the winters of Siberia, or even Canada. This is far from being the case. There is no such thing as a 'Montana climate.' The climate of Port Assiniboine and Glendive is one thing, while that of Bozeman and Helena is quite another. Here seems to be the battle-ground between the cold waves descending from British America, and the temperate western currents from the Pacific. Changes are sometimes very sudden from temperatures far below zero to above the freezing-point, and *vice versa*, as one or the other gets the upper hand; but many a cold wave which extends from the mouth of the Yellowstone to the Atlantic is deflected by the pressure from the west, so as not to be felt in central Montana. The recent severe storm, for instance, kept entirely east of us. On Feb. 2, the minimum at Assiniboine was — 16°; at Benton, — 1°; at St. Paul, — 26°; while it was + 15° at Helena, and + 33° at Bozeman. It was calm and mild here, and not till two days later did the thermometer reach the freezing-point at Benton. Mild weather has since prevailed throughout Montana.

The only extreme cold weather experienced here was during the January storm on the Pacific, when we had a week of below-zero weather, with a very low thermometer, — something very unusual here, and altogether unaccountable to me, until I learned of the storm on the coast.

If it were not for the warm Pacific currents, our winter climate would probably be arctic; but those currents make it usually far milder and more enjoyable than at corresponding latitudes farther east. In 1885, when during February and March one blizzard succeeded another from Dakota to the seaboard, I gathered buttercups (Ranunculus glaberrimus) in bloom at Bozeman on March 15; and on April 5 I gathered more than half a dozen species of flowers (Ammoni patens, Douglassia montana, Phlox canescens, Fritillaria pudica, Synthyris, Townsendia, etc.) on a mountain side, at an altitude of about six thousand feet near the Bozeman tunnel, the highest point on the Northern Pacific railroad.

I send you enclosed specimens of what I gathered yesterday (Feb. 7): Ranunculus glaberrimus with well-advanced buds, well-developed catkins of alder, and catkins of willow and quaking asp, showing the white, silky covering. P. KOCH.

Bozeman, Montana, Feb. 8.

Oil on troubled waters.

During a portion of the years 1839–41, the writer, as a boy, got an experience of life on the ocean in New Bedford whalers (two of them). Though a boy, I was noted for 'seeing every thing.' Being between decks one day, whilst the vessel was lying to in a storm, I observed, that, with every lea-lurch, the weather-seams opened, and let in the daylight and frequently much water. It seemed to me a dangerous condition, and I hastened to report to the officer 'of the deck,' 'on deck,' or 'of the watch.' He only laughed at me, and told me to rig the pump and pump her out, if I thought she was sinking. He said, "The way they make a whaler is to buy a worn-out merchantman, put a new deck on and new sticks in her, and send her out as a new vessel; and you know what the Bible says about putting new and old together? Well, it oftens happens in such cases that the old hull sinks, and the deck and spars sail on as though nothing had happened Oh! we get used to that."

That I knew to be 'a yarn;' but when I saw a 'merchantman' laboring in a sea that was not very bad for a whaler, and learned that the life of a 'merchantman' was much shorter than a whaler's, I wanted to know why, for it seemed to me that there must be a reason for it. I found, for one thing, that whalers always made better weather than merchantmen, when they were in company; that seas would not break in our wake, that would in the wake of a merchantman; that the wake of a whaler was persistent, whilst that of a merchantman was rather evanescent; and that placid waters, or 'short seas,' are the rule on 'cruising ground,' when whales are about. All 'whalers' have their decks, at times, reeking with oil; and, although the decks are 'washed down' daily, it takes a great many washings to free them from all the oil; and much that goes out of the scuppers clings to the sides of the vessel to be gradually washed off by the sea.

A little oil goes a great way on a car-wheel to relieve friction, and it does in that case what it does on water in a storm. I think rain acts in the same way in beating down waves. The drops roll to land-

ward, and in rolling react upon the waves, each a little ; but the aggregate is enough.

GEO. F. WATERS.

The competition of convict-labor.

In my criticisms of Mr. Butler's articles on this competition, I have shown that his method of stating the figures in totals, regardless whether these totals are in that relation which is the question at issue, namely in competition, is irrelevant.

Now, in his last rejoinder (*Science*, vii. No. 158), he brings some figures which are relevant in showing this relation in two trades in New York, — hat and shoe making. In the former, for the year 1879, the ratio was 320 convicts to 5,267 free workers in the first trade, and 1,927 convicts to 26,261 in the second. The first ratio, he says, is 'about 4 per cent,' and the second 'something over 4 per cent.' In addition to questionable ethics and statistics already displayed, he now introduces very questionable arithmetic; for in reality the first ratio is 6 45 per cent, and the second 7.88. One who thus figures may well have, as he says, 'some hesitation in adducing fresh figures' ('fresh' in the sense of new, of course), 'for fear they may be summarily rejected as useless.' True, Mr. Butler, but not for the reason you give, — "because they do not fit in some person's idea of how the 'course of nature' ought to go." No 'person' has said or implied any thing about 'ought' in relation to the 'course of nature' or any other relation.

Those who are organizing the working-classes into a political party, to obtain what they deem justice, are in earnest. Only one who has not felt the dreadful sensation of being unable to sell his labor, when that is necessary to sustain life, can realize the bitterness and pain of such a situation. For every convict whose labor-product is sold in the market, a free laborer becomes superfluous, and therefore fewer work, or all are laid off temporarily, in that branch into which the convict is introduced. Here the 'political economist' of the prevailing order says, 'Find something else to do.' In most cases it is impossible.

There is another evil effect on free labor, resulting from prison-labor competition under any form ; and that is, the effect it has to lower the rate of wages in any branch it enters. It must gain its market by underselling free-labor products ; and however small the percentage, both as to its amount and of the decrease of its price, it lowers the standard of prices, including wages, in that entire branch.

To the workingman, a market for his labor is necessary to life : to the state, a profit from the prison is not essential.

Shylock, surely not an insane humanitarian, truly says, "He takes my life who from me takes the means whereby I live." E. LANGERFELD.

Is the dodo an extinct bird?

Have the recent excursions in theosophy, of my young friend Dr. Shufeldt (see *Mind in nature*, January and February), spoilt a very promising ornithologist to the extent of making him mistake a live Samoan tooth-billed pigeon (Didunculus strigirostris) for the astral body or the projection of the double of a perfunct dodo (Didus ineptus)?

ELLIOTT COUES.

Smithsonian inst., Feb. 14.

Corrections of thermometers for pressure.

The letter of Messrs. Venable and Gore in the last number of *Science*, on the effect of pressure on thermometers, contains a reference to the signal service, of such a character as to deserve a brief notice. It comes near leaving the impression that the service has just begun to consider a phenomenon which has been well known to most meteorologists, and to all engaged in accurate thermometric research, for more than fifty years. The letter, to which reply was sent from the office of the chief signal officer, made inquiry as to whether the service had ever published any thing on the subject, how thermometers used on Mt. Washington and Pike's Peak were compared with standards, and requesting information on the subject. The particular phase of the question which the service has 'had under consideration' was, whether the effect on the thermometers used in the service was sufficient to justify the application of a correction. To this end, some experiments had been made, the results of which were communicated to the writer of the letter. The correction necessary for Pike's Peak, which is the most elevated station from which the service receives reports, amounts to a few hundredths of a degree ; and the propriety of its use is doubtful. The references quoted by the writers of the letter in *Science* were furnished them by the chief signal officer in his reply ; the paper of Loewy and the memoir of Marck being quoted as among the latest and most complete. The phenomenon has by no means escaped the attention of writers. Among works likely to be easy of access, it will be found noticed in the 'American cyclopedia,' 'Johnson's cyclopedia,' Deschanel's 'Natural philosophy,' Balfour Stewart's 'Heat,' and doubtless many others of that class. It is noticed in numerous reports of the British association, especially in the reports of the committee on underground temperatures. One of the earliest investigations of the subject was by Egen (*Pogg. ann.* 1827). Sir William Thomson considered it, and provided against it, in 1850, in his verification of Prof. James Thomson's prediction of the lowering of the freezing-point by pressure. Professor Rowland considered it, and allowed for it, in his research on the mechanical equivalent of heat. In *Nature* (1873–74) it was much discussed ; and of course it has been a matter of vital importance in all modern deep-sea temperature-work, in the reports of which it receives full discussion. SIG.

Washington, D.C., Feb. 15.

Tadpoles in winter.

I have frequently observed tadpoles during winter, in ponds that were entirely frozen over, swimming about underneath the ice. Most of them were of large size : I remember none being less than three or four centimetres in length.

Although, in this latitude, most of the frog-spawn is deposited during the first warm weather of spring, and the hatchings of these spawns develop into frogs before the following winter, yet spawns occasionally occur in late summer or early fall ; and the hatchings of these late deposits fail to mature within the same season, and consequently, in favored localities, live until the following spring, when they transform into frogs. C. C. GREEN.

Middleport, O., Feb. 10.