entered Kennedy Channel at all, and that his supposed Cape Lieber was in reality Cape Good, always provided that our comparison chart is fully to be trusted.

Opposed to this conclusion of a material contraction of the route, we have, in the first place, the explorer's own assertion on the spot, and he ought to know how far he had gone. The paper placed by him in a bottle buried in the cairn gives his highest latitude as 81° 35′ (p. 351 of the narrative), — an opinion to which he ever afterwards strenuously adhered; secondly, we have his chart, with his track extended to the southern cape of Lady Franklin Bay, and which is supported by his astronomically determined latitude on May 17, at Farthest camp, in 81° 31½′ (see p. 20 Smithsonian publication). Those who believe that he fell short of his asserted position must discredit this last observation. Indeed, the comparison of the result of this latitude observation with the next one, which gave the latitude 79° 58½′ (*ibid.*, p. 20), taken May 20, on his return, the day after he left his highest point, has furnished material for criticism (by Dr. Bessels), as it appeared incredible that so long a distance should or could have been traversed in a single day. Yet we should remember that arguments based upon speed alone are rather treacherous: thus it took Hayes forty-six days to reach his highest point on the outward trip, and but fifteen days to return thence to the schooner. It is true he had to carry a heavy load when setting out; but this is compensated by the retardment due to physical weakness of the party, both men and beasts, during their return. No journal was kept by the leader on the home-trip, his whole energy being required to save himself and party; and his prostration was such, that he lost the day of the week by one (as he stated to me), and had to recover the date on his arrival on board ship. He also had the misfortune of having his chronometer run down during a prolonged sleep when near his Cape Lieber.

It is not surprising, that, under these circumstances, his observation at Farthest camp should be defective; but it is particularly unfortunate that he left no means of knowing how he determined his meridian, his practice being to observe but a single altitude of the sun. It is highly probable that the observation was made with the sun in some other vertical than that of the meridian, hence was at a lower altitude, and consequently gave an abnormally high latitude for his place. May he not have estimated the time of the meridian passage, and mistaken the direction of the north and south line? It is noteworthy that he greatly misplaced the direction of the western shore (and axis) of Kennedy Channel, which is about N. 30° E., while his chart makes it trend nearly due north (N. 5° E.).

It may be asked, How could Hayes locate on his chart, with approximate correctness, the western shore-line as high as 82° 15′ (Cape Union), supposing him to have been unable to cross Rawlings Bay? To this it might be replied, that this shore had already been traced by Morton up to this northern limit (see chart in vol. i. of Kane's 'Explorations,' Philadelphia, 1856).

Without pretending to give a conclusive reply to the question at the head of this article, I shall content myself with having pointed out the nature of the difficulties which beset it; and, while the balance of probability seems to point to a decision unfavorable to the claim, I entertain the hope that some future explorer may discover the rough but sufficient monument by which alone a positive and just decision can be arrived at.

An extract from Lockwood's diary, given on p. 95 of *Science*, No. 156, stating that he, as well as Dr. Pavy and Major Greely, agreed in the opinion that Hayes never reached Cape Lieber, induced me to examine the subject anew, with the result as given above. CHARLES A. SCHOTT.

Washington, Feb. 7.

An open letter.

Prof. SIMON NEWCOMB, *President of the American society for psychical research.*

DEAR SIR, — The writer of the accompanying communication has misapprehended the function of the Society of naturalists: but the phenomena he describes fortunately fall within the purview of the association over whose deliberations you preside, and I therefore commit it to your hands.

Very respectfully,
G. K. GILBERT.

Mr. G. K. GILBERT, *President of the American society of naturalists, Washington.*

For the good of science, and in the interest of humanity, I address your worship, entering at once upon my subject.

At the meetings of a spiritualistic society, the members of which bear an unimpeachable character, during the course of about three years of daily experiments by means of the spirit-table, the self-called spirits that were evoked have dictated a treatise, and now demand that it be given to the press, and bear the title 'Spiritualistic apocalypse,' asserting that such publication is necessary for humanity.

In this dictation it is established and explained, with marvellous clearness, learning, and scientific language, what is 'power' and what is 'force,' and how these two perform their functions in harmony through eternity and through space. Next there is established the fact of a living magnetic current, which will give occasion for new discoveries, and a metaphysics of social harmony, with absolutely new arguments, on which it will be well for society to reflect seriously. Moral science is lighted up in its true profile, and not from the utilitarian side. Religions are placed in the position which they deserve, and indirectly the true religion is pointed out. There are weighty political prophecies; one of them, a very beautiful one, having been dictated by a spirit who said he was General George Washington. There are useful counsels for organic social reforms, learned astronomic communications, and surprising explanations of fundamental theologic philosophy. Physics, chemistry, and algebra are largely, and with critical judgment, employed in the development of the theorems thus established. There are instructive dialogues and trilogues among spirits of diverse nature and degree, but identical in substance. Finally, the virtual necessity of the why and how of their existence is explained. This, in brief, is what the self-called spirits have dictated, and what they wish humanity to know.

My companions and friends, before publishing this collection, in order to have some fact that might induce persons to read it and reflect on it, under the influence of a firm assurance that it is not the offspring of our own minds, have asked the dictating spirits' permission to invite other experimenters to

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-