Small as this makes the force of the competition appear, the real effect is smaller still. The competing power of the prisons was, as appears above, 23,524 convicts. But, relying on the most scientific tests and measures that the English prison managers have been able to apply to the productive force of convict labor, we find that it takes the labor of two convicts to equal that of one free laborer (see 'Report of the superintendent of state prisons of the state of New York for the year 1884,' p. 24). This results, of course, from the low mental and moral equipment of the average convict, as well as from the peculiar conditions under which prison labor is carried on. As it is a well-known fact that the artisans in the United States accomplish more work in a given time than their European competitors do, it will be necessary to allow for a somewhat higher standard of convict labor. Putting this allowance at 10 per cent, we find that the productive labor of an American convict is 60 per cent of that of the free workman.

Therefore, while the percentage of convicts to free laborers was 1.83, the competitive productive power of the former was only three-fifths of that, or 1.1 per cent. And it is this minute percentage of competition that has caused all the hue and cry against convict labor.

In a recent paper on 'The rate of wages,' Mr. Edward Atkinson of Boston, basing his statistics on the census of 1880, states that 17,400,000 persons are engaged in some gainful occupation. Of this number, 150,000 are in government employ: so there remain 17,250,000 producers, who, by exchanging products with others, also obtain the means of living, and thereby become consumers. 1,050,000 of these are engaged in mental rather than manual work; such are clergymen, lawyers, teachers, artists, chemists, engineers, officials of banks, railroads, insurance companies and corporations, merchants, traders, and dealers. When these are deducted, we have a remainder of 16,200,000, who constitute the actual working-class. 7,000,000 of these are farmers and farm-laborers, and the rest are artisans, mechanics, clerks, laborers, operatives, domestic servants, and other wage earners. The products of the mechanical industries of the United States amount to more than five thousand million dollars annually. The total product of the state prisons of the country is not over twenty millions per annum, or two-fifths of one per cent of the whole manufactured products of the country; and this figure is obtained by taking prison labor at a valuation of two dollars per day, — the average price for labor outside of prisons. As the convicts earn, on an average, only forty cents a day, their earnings represent a product of less than one-fifth of one per cent of the products of the United States.

We are convinced that those who participate in the crusade against the employment of convicts in productive industries on the ground of unfair competition with free labor, are innocent of any acquaintance with the facts and figures that bear on the question. NICHOLAS MURRAY BUTLER.

THE NEW VOLCANO IN THE PACIFIC.

THE *New Zealand herald* of Nov. 3 contained the following account of the recently reported new volcano in the Pacific: —

"In yesterday's paper we stated the news brought by the schooner Maile, that a new and vast volcano had arisen in the Pacific Ocean. A correspondent in Tonga, dating Oct. 19, gives the following particulars: 'At daylight on the 13th of this month (October) we observed dense volumes of steam, smoke, and clouds, ascending in a N. N. W. direction. At one o'clock P.M. on the same day proceeded in the Sandfly in that direction, having on board the Premier, Mr. Baker, Mrs. Baker, two Misses Baker, Mr. S. W. E. Baker, Miss Tuckow, Dr. Buckland, Rev. Mr. Watkin, Mr. F. Watkin, Mr. Wilson, Mr. S. Roberts, Prince Liponie, Chief Tongi, and several others; sailed sufficiently close that evening to see that it was a submarine volcanic eruption. Considering it not prudent to approach it any closer, night coming on, and thinking there might possibly be a set of currents towards it, shortened sail, and worked to windward of it, keeping it at a respectable and comfortable distance from us during the night. In the morning at daylight made sail with a fresh breeze from E. S. E. About eight A.M. my judgment was, we were about 1½ to 2 miles from the crater, it bearing then about N. W. I have not words to express my admiration and wonder at its changing splendor. Eruptions take place every one or two minutes, changing its appearance every second like a dissolving view. I can only say it was one of the most awfully grand sights I ever witnessed in all my life on the high seas. And now for the position, as near as I have been able to calculate at present, of the island that has been thrown up by this volcanic eruption. It is on the S. E. edge of Culebras reef, as placed on the chart by H. M. S. Falcon in 1865, and N. N. W. ¼ W. magnetic, 14 to 15 miles from the island of Honga Tonga. As to the size or extent of the island thrown up, I am at present unable to state correctly, there being so much steam and clouds hanging about and over it; but I should imagine, from what little I could see of it, that it was from 2 to 3 miles long, S. W. and N. E.; height about

60 ft.; lat., 20° 21′ S.; long., 175° 28′ W. position of Sandfly Island, for we saw it rise. Got back again just too late to enter the reefs to Tonga. Anchored at Nukualofa at ten A.M. on the 15th. We had lovely weather all the time, a nice S. E. wind, and every one seemed highly gratified with what he had seen.'"

THE RECENT COLD WAVE.

THE accompanying minute maps are reduced from daily weather-charts published by the signal service, and represent certain features of the weather during the passage of the recent severe cold wave. The series of six maps (figs. 1 and 2), designed to show the changes of temperature from Jan. 7 to Jan. 12, are crossed by a heavy line that marks the altitude of 0° F. as determined by the observations at 7 A.M. on successive mornings.

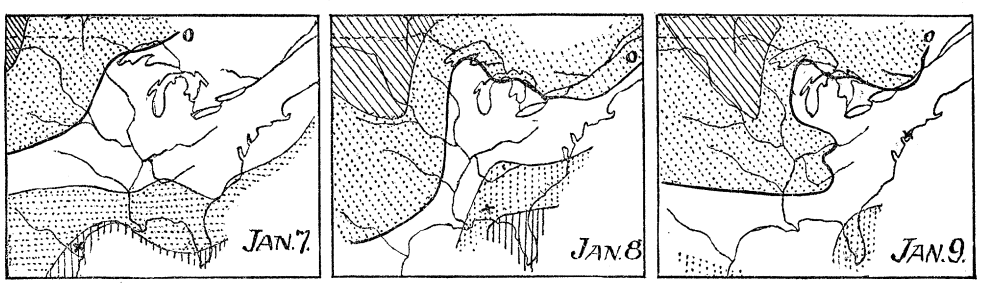

FIG. 1.

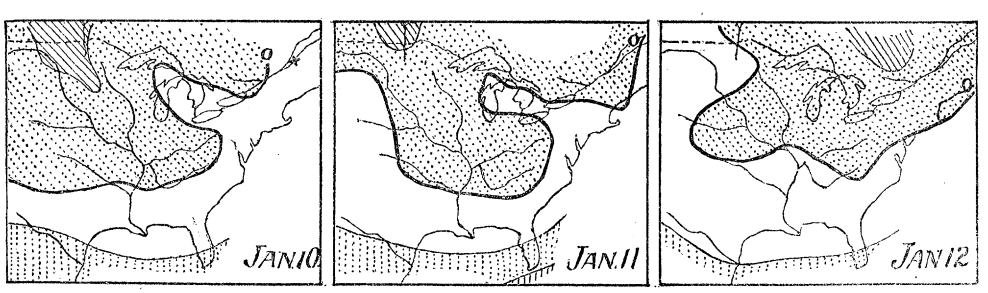

FIG. 2.

To the north of it, the dotted area extends to the isotherm of 30° below zero; the space shaded with lines, farther north, being colder still. The unshaded part of the maps contains the temperatures between 0° and 30° above; the next belt covers temperatures from 30° to 50°; and in a few of the maps, temperatures above 50° appear in the extreme south.

On the morning of Jan. 7, a storm-centre of moderate intensity lay in southern Texas, having come across northern Mexico from the Pacific; at the same time an area of high pressure, with very low temperatures, stood in the far north-west. As is stated by Lieutenant Woodruff in his recent note on cold-waves, areas of high pressure extend to the south and east with their low temperatures, while the antecedent storm-centres move off to the north-east. The wave here considered belongs to the third of Woodruff's classes, inasmuch as it first spread southward to Texas, and then east and northeastward to the Atlantic coast. On Jan. 8, when the storm-centre was near Mobile, a fine 'norther,' such as would have delighted Redfield, swept down the plains to the Gulf, and Galveston was only about ten degrees warmer than Duluth. The zero isotherm stood just west of the Mississippi, running nearly north and south for about seven hundred miles. During the next three days, while the storm moved off over Labrador, the cold wave crept up the Ohio valley, where the temperature then stood distinctly lower than in Michigan, two hundred miles farther north. At last, on Jan. 11 and 12, the zero isotherm turned well north over the plains as more moderate temperatures returned.

The most interesting phase of this spell of weather was doubtless that presented on the morning of Jan. 9, when the storm had developed into a true cyclone, with nearly circular isobars, and remarkably low pressure at its centre in southern New Jersey. At this time the barometer