

sions (and far into these Possessions), is, in an agricultural sense, practically valueless, except in a few exceptional cases, where water can be used for irrigation; and that even with this process not more than one acre in many hundreds upon the average can be made available on account of the scarcity of water.'

"General Hazen proceeds:—The reports in the office of the General Land Commissioner at Washington show that the Surveyor General of New Mexico and Arizona estimates that not to exceed one acre in seventy can be cultivated in those Territories, and that 'cultivable' is synonymous with 'irrigable.' In Colorado, the various Surveyors General have placed their estimates from one acre in thirty to one in sixty, while Mr. N. C. Meeker's letters would appear to put it somewhere within these limits. The grazing interests here are, however, much more valuable than the agricultural, a fact just dawning upon the Greeley colony. The arable lands of Utah correspond in quantity very nearly to those of New Mexico, while the report of Gen. John Day, Surveyor General places those of that State as one acre in sixty. The proportion of arable land in Montana and Idaho is somewhat greater than in the other middle Territories, but the same necessity for irrigation exists in all of them alike, as well as in the western half of Texas, Indian Territory, Kansas, and Nebraska. The eastern portion of Dakota, including the Valley of the Red River of the North, is most excellent, and requires no artificial irrigation. The pastoral interests are valuable all over this region.

"Much has been said of the agricultural advantages of the Black Hills, but Prof. J. H. J. J. J. expedition reports that on the 11th of June they encountered a snow storm there 'of such severity as to baffle all efforts to proceed,' and on the 10th of September 'ice on still water froze a half inch thick.' With these facts, remembering the altitude of this region is 1,000 feet above the sea, intelligent men are able to judge for themselves the desirableness of this section for agriculture. I have before me the itinerary of the expedition that went up the Yellowstone the past summer as far as a light river steamer could go, or about to the mouth of Prior's Fork. Up to the mouth of the Big Horn, the Yellowstone Valley does not differ materially from that of the Missouri; that is, it is from a few yards to a half mile or a mile wide, with bad lands on both sides beyond. Above the mouth of the Big Horn, the foot hills of the Rocky Mountains appear, the river becomes a torrent, the valleys are more extensive, one being found some fifteen miles long and five or six in breadth. There is a good supply of pine timber on the hills, and an extensive supply of excellent cottonwood along the river. But the white men living there with the Crow Indians report that agriculture is very uncertain, owing to short seasons and the liability of frosts, due to the altitude.

"The past season has been one of unusual and somewhat remarkable rains in Dakota as well as in many other parts of the world. This has given fair crops of roots, vegetables, and some grains, without irrigation, and has given the few struggling farmers about Bismarck great hopes for the future, but the officers of the land office there told me in November that they are selling very little land, and that even if the crops of the last very exceptionally favourable year could be taken as a criterion, general agriculture could not be made profitable in that region. Remembering the suffering of those who have sought homes to the westward of the limit of sufficient rainfall, of the great need

of correct information upon this subject to enable Congress to dispose intelligently of questions involving the capabilities of this country and the fact that many hundred thousands of dollars are spent each year in 'sectionizing' this worthless land that can never be sold for a tenth of the money spent in making surveys, would it not be well for Congress to take steps to gather, for the use of all, the facts respecting the agricultural qualities of this interior country? This most useful and practical knowledge seems to be subordinated in all our surveys to more purely scientific questions, and although giving much of the data from which the fact of the question now discussed are deducible, yet it does not come in a form that is plain and comprehensive to the general public. The best and most disinterested witnesses, possessing all these facts, can be found within the limits of Washington—Gen. Warren, Lieut. Wheeler, Lieut. Carpenter, and Dr. Yomans, of the army; Profs. Hayden and Powell, Mr. Gardner, Clarence King, and many other perfectly trustworthy men, who have spent many years passing over and examining this country, would tell the whole story.

"I will recapitulate what I have previously stated—that the region of country between the 100th meridian and the Sierra Nevada mountains—the way from Mexico to the British possessions—is practically valueless for agricultural purposes; that while mining interests of great value will be developed, and scattered pastoral communities of great thrift will occupy the country, with an agriculture of sufficient extent in exceptional localities for all local wants, yet none of this region can support more than a very meagre population until there shall be changes in natural phenomena not reasonable to hope for. In other words, the building up of new and populous States, such as Wisconsin, Iowa, and Missouri, will no more be seen on our present domain, and all calculations based upon such a thing are false, while all extraneous influences brought to bear upon emigration to carry it west of the 100th meridian, excepting in a few very restricted localities, are wicked beyond expression, and fraught with misery and failure."

We have had occasion some years ago to draw attention to the gallant and humane conduct of the light keeper at the mouth of the Thames, and it is now our pleasing duty to again bring his heroic daring before our readers. We have no society for rewarding acts of human daring such as those displayed by the hero of the following notice from the *Detroit Free Press* :

"It will, perhaps, be remembered by the readers of the *Free Press* that some time about Christmas several small sailing vessels started up Lake St. Clair after loads of wood, the weather being warm and little or no ice in sight anywhere. They had fine sailing until near the mouth of the Thames River, when they got stuck in a field of ice and dragged their anchors into Mitchell Bay, there being rather a brisk wind at the time, and their anchors not being heavy enough to withstand the heavy pressure of the ice forced on by a moderate sea.

"When within the bay they felt quite secure, but their provisions soon gave out, and there were no signs of the ice either freezing hard enough to form a safe passage to the shore, or thawing sufficiently to allow them to work their small boats through without a certainty of being crushed by the

constant dead swell. This being the case, they signalled for help, though scarce daring to hope for assistance, as none of them possessed the hardihood to even get out upon the nearest floating cake. The fleet consisted of the Cora Bell, Captain George Bryant; Wild Flower, Captain Peter Lemond; Linda Bell, Captain Forca, daring hardy seamen all, but unaccustomed to that particular style of being cast away. Thomas Cartier, keeper of the lighthouse at the mouth of the river, set out on foot across the broken sea of ice to ascertain what assistance he could render. Capt. Bryant, from whom this intelligence was received, tells the remainder of the story as follows: 'A braver man than Thomas Cartier never lived. He risked his life to save the lives of those three crews when not one of us dared make the attempt. We felt certain we could not get out until a hard freeze came, and the weather indications were not encouraging for that under a week or more, and we had eaten nothing for twenty four hours. He jumped on to the ice when he saw our signal and came running and jumping from one floating cake to another, and our eyes were strained hard with watching him. Presently down he went, out of sight, and a shudder went up from us that you could hear from one deck to the other, but he came up again, many feet from where he went down. He had actually swum under a number of small bits of ice, too little to hold his weight, and so far as he could see without any passage around the terrible channel. Then he came on more cautiously than before, but fell several times, never turning back once. When he got to us he did not appear tired or cold, but asked what was the matter. We told him we were out of provisions and hungry, and had no boats that would stand that moving, broken ice. All right, he said, and away he went back as he came, and with meat and bread cooked by his wife he came to us day after day for fifteen days, and fed us, and finally after working all night some nights they got out our line, he and his wife, daughter, and a neighbour, and at last we got it ashore and hove in with the capstan. And what do you think when we wanted to pay him? Not a cent would he take, not even for the provisions we had eaten. I tell you, sir, we shan't forget that man and his family right away.'

"The Linda Bell returned to this port, but the other two boats got safe inside of the Tames, and are content to stay there the remainder of the winter."

"From a recent return we learn that nine large ironclads are either being built, or are approaching completion in England. We hear also that the plans for two other armoured ships have been received at the dockyards, and that the vessels will be begun as soon as the necessary material has been collected. Of the ironclads already in hand four are turret ships, carrying each four guns. These are the *Inflexible*, 7000 tons; the *Dreadnought*, of the same tonnage; the *Thunderer*, 6000 tons; and the *Rupert*. The *Inflexible* is being built at Portsmouth, and great exertions are being made to get her ready for launching in March next. In the *Thunderer* an improvement is being introduced in the fitting of the watertight doors; the handles with which they are generally closed have been removed and the doors formed in two parts, the one ascending and the other descending by means of a common motion imparted to them by one screw. The new broadside ironclads are the *Alexandra*, 6000 tons, which