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THE LATEST BRITISH NAVAL FAILURE.

A strange fatality seems to attend the vessels of the English navy. For more than two years past accidents and blunders have occurred so repeatedly in the finest and presumably best built ships that the conclusion appears imminent that the superior skill of English ship constructors, engineers, and seamen is fast leaving them.

But the hugest blunder of all, if we may credit Mr. E. J. Reed, the late chief constructor of the navy, has been perpetrated in the designing of the famous Inflexible, supposed to be the most powerful vessel of all the English ironclads. She is built on the citadel principle; that is to say, she has a heavily plated central portion wherein are guns, machinery, and magazines.

GLIMPSSES OF ATLANTIS.

The sedimentary rocks of our Atlantic States aggregate a thickness of nearly 45,000 feet. The manner in which the sand, gravel, mud, and so on, which formed these rocks, was distributed over the bed of the sea which rolled where our continent now lies, proves beyond a doubt that they came from the north and east.

It is not to be imagined that the ante-American sea was 45,000 feet deep. When the earlier palæozoic strata were forming the water was evidently shallow, and in some parts broken by islands. From time to time the sea was deepened by the sinking of its floor; and as the successive strata were laid down the subsidences for the most part more than kept pace with the thickening deposits.

While the new America was thus forming the ancient Atlantis was no doubt sinking as well as washing away. When its final disappearance occurred remains to be determined; quite recently, however, two or three lines of scientific research seem to converge in support of the truth of the ancient story, long considered mythical, in regard to the geologically recent occurrence of that remarkable catastrophe.

Since the exploration of the North Atlantic sea bottom for telegraphic purposes proved that no elevations or depressions inconsistent with the safe laying of cables were to be found between Newfoundland and Ireland, it has been popularly taught that the Atlantic lies in a vast trough with a comparatively regular bottom. A wider range of soundings made by the American ship Dolphin, the German frigate Gazelle, the British ships Hydra and Porcupine, and more recently by the Challenger, quite overthrows the popular idea, proving the Atlantic bed to be rather a double trough, the deeper depressions separated by a mountainous ridge of great altitude running north and south, almost midway between the existing continent.

of the equator in the Azore Islands, and further south in St. Paul's Rocks, the Islands of Ascension, Tristan d'Acunha, etc. On the other side of the ridge the water deepens, the bottom presenting a surface diversified by hills and valleys, such as could be carved out only when the sea bed existed as dry land.

From the soundings made and collated by the officers of the Challenger expedition, a chart has been prepared, showing by soundings, first, the Atlantic areas having a depth of over 2,000 fathoms, and second, the areas ranging between 1,000 and 2,000 fathoms: the narrower areas having a depth of less than a thousand fathoms, showing white. By far the greater portion of the sea bed south of 50 N. L. exceeds the depth of 2,000 fathoms. The area of medium depth covers the northern sea down to an irregular line between Newfoundland and England. Thence a narrow isthmus (beginning about 52° N. L., and 30° W. Long. from Greenwich) connects the northern table land with what has been denominated the Dolphin Ridge—a seal-shaped area with its head to the north and its tail joining (at about 15° N. L. and 45° W. L.) another ridge called the Connecting Ridge.

Here unquestionably we have the backbone of the ancient Atlantic continent; and in a recent lecture in London one of the Challenger staff has reviewed the evidence of soundings touching the general contour of the "lost Atlantis." Its valleys and hills are not such as could be formed by any natural irregularity in the deposition of sediments, nor by submarine elevations; they have been carved by agencies acting above the water level. Along the ridge there are four points which remain unsubmerged—the Azores, St. Paul's Rocks, Ascension, and Tristan d'Acunha. In the deeper basins, the Bermudas, Fernando de Noronha, Trinidad, and St. Helena rise to the surface, in some instances not far distant from depths exceeding 3,000 fathoms.

Thus deep sea exploration confirms the report of geology that Atlantis really existed; and palæontology also bears witness to the same great fact. Still more, it testifies that the final disappearance of the buried ridge did not occur until comparatively recent times. The evidence on this point was reviewed some eight years ago by Professor Unger, who had been led to believe that a land connection must have existed between Europe and America, as late as the tertiary period, by a comparison of the recent and fossil floras of the two continents.

With such support the traditions of the ancient world, on both sides of the Atlantic, begin to read like something more than empty myths. The Egyptian priests, it is more than likely, were reciting veritable history when they told Solon about the islands of continental magnitude that formerly existed in the outer sea beyond the pillars of Hercules, but had sunk beneath the waters. And it is not impossible that the mighty kings of Atlantis may have invaded Europe and Africa, as the Egyptian books narrated, and overrun those countries as far as Greece and Egypt.

The story of the sinking of Atlantis during a time of floods and earthquakes was preserved with even greater fulness of detail on the American continent, if there is any truth in the representations of Brasceur de Bourbourg. That student of Central American monuments and traditions asserts that not only was the story of the submergence of a great country to the eastward widely spread among the natives and frequently referred to in their writings, but that seasons of humiliation and prayer were observed in commemoration of such disasters—both princes and people humbling themselves before their divinity and praying that the calamities which had overtaken their ancestors might never be repeated.

To the evidence of tradition de Bourbourg adds that of language. The words Atlas and Atlantic, he says, have no satisfactory etymology in any language of the Old World. On the other hand, the radicle atl is characteristic of the

Nahuatl language, which played so important a part in Mexico and Central America. It signified water, war, and the top of the head, and furnished a series of words, such as *atlan*, on the border of or amid the water; also *atlaca* (preterit, *atlac*), to combat or be in agony, and to hurl or dart from the water. *Atlan* was the name of a native city at the entrance of the Gulf of Uraba, in Darien. The same combination appeared also in *Quetzalcohuatl*, the name of the quetzal plumed serpent god of the Aztecs.

We are not aware of any geological reason for doubting the possibility of the lingering of Atlantis as an archipelago down to post-tertiary times, and its final submergence within the period since man appeared. The probability of its continuance hinges entirely on the credibility of human traditions. In the absence of conflicting evidence, the concurrence of testimony from people so widely separated as the ancient Greeks and Egyptians on the one side, and the Central Americans on the other, may in some minds count for a great deal. At any rate it must be admitted that Atlantis has existed as a substantial reality.

AN ENGLISH MECHANIC ON AMERICAN MACHINES.

Dr. John Anderson, C. E., contributes the report on machines and tools for working wood, metal and stone, at the Centennial, to the recently issued volume of reports of the British Commissioners and Judges. As one of the most eminent of English mechanics and engineers, and besides an observer of much acuteness and intelligence, Dr. Anderson is capable of pronouncing a just opinion of our productions—one indeed which Americans will look for with interest and read with respect. Most of Dr. Anderson's report is taken up with descriptions of machines which especially impressed him, and which need not be noted here. He has a straightforward way, however, of telling what he thinks, that enables us to convey pretty clearly the drift of his opinions by a sentence now and then abstracted.

As was the case with most of our foreign mechanical visitors, Dr. Anderson was first struck by our multiplicity of special and labor-saving devices. The invention of these he thinks is our "natural forte and worthy of the old stock probably quickened by the peculiarly favorable circumstances under which they live. It was the display made in this section of the exhibition which most conspicuously brought out the enormous strength of America as a producing power." "No mere words," he says, "can convey an idea of the high standard of excellence of American watch making machinery. Sellers' tools were without a parallel in the history of exhibitions either for extent, money value, or for originality and mechanical perfection." For torsional, tensional, and malleable qualities the samples of American iron and steel "were equal to the best of any country." "The impression is left upon the minds of European visitors, that American competition in machine tools will soon be upon us, but that the competition will not be in regard to price, but rather for high quality and productiveness and the capabilities of doing more work with a given expenditure on labor." The concluding paragraph of the report which is the conclusion drawn from the whole, is suggestive.

"In past times England has been the nursery ground of the manufacturing system, her factories have been visited and her system of cotton and other textile manufactures copied by all nations, but the time seems to have arrived when we shall have to visit America in the same way and for the same purpose, in regard to the production of other things, and there is no time to be lost if we mean to hold our own in the hardware trade of the world, at least in regard to the class of things that are required in large number or quantity. * * When we consider the enormously greater area of the American continent, it is a matter of vast importance, that tools have taken such a hold on the American mind which will influence the civilization of the Western world for ages to come, and will exercise a powerful effect not only on that continent, but on Australia, China, and the world generally: this therefore has a profound significance which can scarcely be overrated."

PROGRESS OF THE MISSISSIPPI JETTY WORKS.

Captain Eads' latest report of progress upon the improvement of the South Pass of the Mississippi river is most gratifying and leaves no question as to the ultimate triumphant success of the entire great work. Careful examinations have been conducted from time to time with the result of showing a steady increase in width and depth of the channels, thus bringing to Captain Eads' theories the strongest confirmation. For two years work has now been going on upon an unused outlet of the vast river. Up to the present time the concentration of the water flowing across the sand bar at the mouth of the Pass by the jetties has created a channel over 200 feet wide and in no place less than 20 feet deep, where only about 8 feet previously existed. The concentration of the water flowing over the shoal in the river at the head of the Pass has likewise created a channel over 400 feet wide, in no portion less than 20 feet deep and 30 feet deep in the center, where before the depth was scarcely 14 feet. During the time in which a portion of the flow into the Pass was interrupted by the works at its head, and while the current consequently slackened, Captain Eads states that a temporary deposit took place in the Pass and between the jetties. But the gradual restoration of the normal flow into the Pass through the new channel at its head has already begun to enlarge the Pass again and, continues the report, "has, since this restored flow commenced, removed from between the jetties within the past three months over

half a million cubic yards of deposit, and given through more than half the length of the jetties a much larger and deeper channel than ever previously existed, the size of which is already throughout more than 2,000 feet, 28 feet by 300 feet, or that required to entitle us to the fifth payment from the United States, while many hundred feet of it exceeds 30 feet by 350 feet."

The reformation of the bar in advance of the jetties, which many engineers believed would occur, is effectually prevented by the gulf current athwart the mouth of the Pass, which deepens the outer slope of the bar and sweeps away any such portion of the discharged sediment as the river current fails to carry to unknown distances seaward. At the head of the Passes the river has a width of over 9,000 feet, and yet is brought under complete control by Captain Eads' works, which are so designed as to allow of the increase or limit of the discharge into the South Pass if hereafter necessary with but little additional outlay. Captain Eads concludes his report and at the same time announces the splendid success which has crowned this application to his genius and ability in the following terms:

"I may add with absolute certainty, that this entire system of works is now so far completed that no financial difficulties can intervene to arrest the processes of nature which are constantly operating to enlarge and perfect the desired channel through them.

AMERICAN REPRESENTATION AT THE FRENCH EXPOSITION.

There has been some doubt expressed recently as to whether the Paris International Exposition would take place in 1878, it being surmised that the unsettled condition of affairs in Europe would render its postponement necessary. Late advices, however, show that there is no basis for this supposition, and that the work of erecting and making ready the buildings is being vigorously prosecuted. The N. Y. *World's* correspondent states that the masonry and brickwork are in place, that the great iron works of Creusot and Fives-Lille are competing in the matter of rapidity of erecting the frames of the structures, and that the French Commissioner General has officially announced the certain completion of all by the spring of next year. All nations with the exception of Germany and the United States, have accepted invitations to participate and have already entered upon the organization of their representative displays. Even Russia and Turkey, despite the war, are to take part.

Germany's refusal to contribute is owing to the unhealed breach between herself and France. Our own failure to make the necessary preparations to ensure the representation of our industries is, as is well known, due to the failure of Congress to attend to the matter before adjournment. It is stated that already large numbers of Americans are in Paris endeavoring to make arrangements as to space, etc., and that on the other hand, the "French are burning with desire to strain a point in favor of Americans by recognizing any body of men, or any individual having a shadow of official authority, but until that person shall appear they are obliged to hold that the United States is non-existent for the purposes of their mighty show."

It seems to us that if this view of affairs is correct a great deal of regret over the so-called negligence of Congress is being wasted over here. Let the representatives of American manufacturers, who "run from the legation to the office of the French Commission and back again without finding anyone to give them a helping hand," help themselves. Let them organize their own commission and apply to the President for official recognition. We do not see that any further formalities are required, at least in the face of the statement quoted in the last paragraph. Then let them or their principals furnish money and invite subscription from every one who is interested in having an American display in the show, and with the funds so raised go ahead. It is getting to be an altogether too prevalent notion in these days of World's Fairs that we cannot get up a respectable display of our productions without an appropriation and a new army of office holders to spend it. Our unfortunate experience at Vienna goes to prove the fallacy of this even if to every thoughtful person the same were not already apparent. It is radically absurd to sit grieving over what Congress did not do, when the way out of the difficulty is perfectly clear, and it is more absurd to wait for the possible action of Congress in granting money when it meets next winter. Even if money appropriated in December would not come too late to secure a proper official organization, in the present state of the national finances, when retrenchment is everywhere being enforced, Congress should not devote a cent to assisting any one or any class of the people to advertise themselves in Paris.

FAST FREIGHT RAILWAY TRAINS.

The subject of moving freight at faster and cheaper rates was one of the principal topics of discussion at the late meeting of the master car builders' association. The competition of water conveyance, together with the general depression of business, makes the demand imperative that there be some method by which freights may be moved at cheaper rates than those now employed. The solution of the problem is one that effects, not only railway companies, but the public at large. Stockholders are interested in a fair percentage for the stock they hold, while the public are more interested in some cheap, yet rapid method of conveying goods and agricultural products to their various points of destination. To those railways that come in direct competition with lake,

river, and canal transportation, the demand is imperative, that to secure returns to stockholders, some energetic action must be taken that will enable them to lower their rates of transportation.

It is claimed by some railroad men, and men, too, who have had long and varied experience in such matters, that it is more economical to run freight trains at a high rate of speed, say twenty-five miles per hour, than to run a train a one half that speed. This will be one great benefit in the competition with the water routes. The advantages claimed for this high speed are, that when a train is once under way less fuel is consumed, and less power is actually expended than when moving at the low rate of speed. In proof of this, experiments were made on the Lake Shore Road. An engine with dynamometer attached was run from Buffalo to Chicago and a record kept the entire distance, both at twenty-five miles per hour and at twelve miles. The fuel was weighed and everything recorded that was thought of value. The result showed that in economy of fuel, the fast speed had the precedence. Resulting from this is the economy of power in moving a train at quick speed, as, after once started, less power is required to keep the train at that speed than if kept running at a low rate of speed, as, at the less rate, the engine is kept under strain twice as long, and during this time a large amount of heat is lost by radiation. With the fast speed, the train hands would be on duty but half as long and a consequent saving of wages paid, and finally but half as many cars would be required to transport the same amount of freight.

With fast speed trains, it will be necessary to look well to track and rolling stock. If the track be high in some places and low in others, causing the train to be tossed from one side to the other, it will result in wear and destruction. Car wheels must be round and not eccentrics. With the movement of the train these defects will be augmented and result in danger and damage. It was said by an official, who was connected with a very important line: "If you car men will give us the control of our trains through some continuous train brake, we will dispense with from one third to one half of the number of cars now in use, we will transfer grain from Chicago to New York in one half the time we now do it in, we will move our trains at less cost to you for repairs, as has been demonstrated by trains running over this line for a series of years at twenty-five miles per hour termed 'immigrant trains.'" He also said, that the repairs on these trains is less per number of cars than in the trains moved at twelve miles per hour.

Surprising as may seem the statements made before the association, the facts of the economy of fast speed freight trains was acquiesced in, but it was thought advisable not to attempt such high rates of speed unless these trains were equipped with suitable train brakes, and the engine and tender provided with steam brakes always ready for application.

Nordenskjold's Next Expedition.

For Professor Nordenskjold's expedition, which is to set out from Gothenburg, in Sweden, in June, 1878, a vessel has already been chartered for 150,000 Swedish crowns (about \$25,000). King Oscar has contributed 50,000 crowns from his personal revenue, but the burden of the expense will be borne by the friend and patron of Nordenskjold, a merchant of Gothenburg named Dickson. The route of the expedition will be from its starting point to the North Cape, thence eastwardly through the Polar Sea to and through Behring's Strait, thence along the eastern and southern coasts of Asia, through the Red Sea, the Suez Canal, and the Mediterranean Sea to the Atlantic Ocean, and return home in the autumn of 1879.

Smoke Screens for Torpedoes.

History is repeating itself again. In his veracious chronicle of New York Mr. Diedrich Knickerbocker says that, when an English ship sailed into the harbor, and arrogantly demanded of the primeval Dutch, the prompt surrender of their possessions, that portion of the phlegmatic population which had settled in Communipaw raised such a cloud of smoke from their huge pipes that the piratical British never discovered their existence in the midst of the dense fog. A similar plan is now proposed for the protection of torpedo boats from the fire of an attacked ship. Hale's rockets are to be provided with smoke balls and these discharged from the launches on igniting envelope both the assaulting craft and that assaulted in such a thick cloud that it will be practically impossible for the latter to use her electric light with any efficacy, or to sight her guns at her concealed antagonists.

American Institute Exhibition.

Our manufacturers are now fully awake in the matter of exhibitions (thanks to the "Centennial,") and so far as their limited space is concerned, we are assured the coming exhibition of the American Institute of this city will be of more than usual value and novelty. For information address the General Superintendent.

RECIPE FOR HOG CHOLERA.—Take one teacupful of pulverized copperas and mix with one gallon of salt; and salt the hogs twice a week regularly. This is said to be a sure preventative, and has been known to cure in many instances after the disease has commenced.

PARTIES desiring information in regard to the horse-collar stuffing machine, illustrated in last number, will address Mr. B. F. Grayson, Jr., Luray, Page county, Va.