

MISCELLANEOUS SUMMARY.

THE United States iron clad steamer *Winnabago* left St. Louis on the 20th October, on a trial trip, under the command of Chief Engineer James W. King, U. S. N., Superintendent of Iron clads in the West. She was operated on seventy-two consecutive hours, the engines making sixty-seven revolutions per minute, and the propellers 112 revolutions. With this speed of screw, the vessel sailed nine miles an hour in smooth water. The *Winnabago* is the first of four sister propellers launched, and considerable anxiety was therefore manifested in the result. It is gratifying to know that everything worked satisfactorily. The vessel is of iron, 220 feet long, 56 feet wide, and 7 feet deep. She has two fore-and aft bulkheads, and six thwart-ship bulkheads, all water-tight. She has two turrets, one Ericsson and the other Ead's patent. The latter turret differs from Ericsson's, among other things, in having a portion of the shell entered down to, and the whole weight of the turret resting on spheres at the bottom of the vessel. The guns are placed on a huge platform, loaded in the hold, and raised in the turret by steam power. They are also run out by steam; the recoil is received on steam cylinders, and the whole apparatus, guns and all, is operated by one man (an engineer), no other person being needed in the turret. The loading is accomplished by loaders below the turret, in the hold.

WHY SEMMES AVOIDS THE VANDERBILT.—The London *Shipping Gazette* says that, in commenting upon the probable consequences of an encounter with the *Vanderbilt*, Captain Semmes, of the *Alabama* speaks thus of his own ship:—He said that although the machinery of the *Vanderbilt* would be a good target in fighting with a steamer, it is not easy to escape from having a broadside. He found that to be the case with the *Hatteras*. Although he disposed of her pretty easily, it was as much as he could do to prevent her from giving him a broadside. The plan he adopted with the *Hatteras* was to use his large Blakeley gun from the stern of his ship, and that gun did the work. The gun is an eighty five pounder, and he thinks that his only chance with the *Vanderbilt* will be to use it upon her machinery. His opinion is that the *Vanderbilt* has very much greater speed than the *Alabama*, and that it will be impossible for him to get away from her. He does not intend to go and look for her; but says that if he has to fight her he will do his best.

ANNIVERSARY ADDRESS OF THE AMERICAN INSTITUTE.—The annual address before the members of the American Institute was delivered on the 11th instant by the Hon. Charles P. Daly, at the hall of the Historical Society, this city. The subject was "The Origin and History of Institutions for the Promotion of the Industrial Arts." The orator, Judge Daly, is a very finished and fluent speaker, and chained the attention of the large audience of ladies and gentlemen until the close. We regret that we have no space for a fuller report.

QUALITIES OF SCREW PROPELLERS.—It is worthy of remark, in designing screw propellers, that those wheels which have a medium proportionate diameter, a medium pitch and proportionate fraction of the pitch in surface, or in length of the hub, give better results than extreme diameters, very quick pitches, and large working or superficial area on the blades. Experiments, carefully conducted, prove the truth of these statements.

USING DUMMIES.—The recent experiments with "dummy" engines upon the Frankford and Southwark Passenger Railway, proved entirely successful, and the Company is now having built a number of these engines for use on the branch of their road from Berks street station to Frankford. Two engines have been completed and are now running regularly upon the road.

A SMOOTH and beautiful finish to the handles of brooms, rakes, hay-forks, and other articles of a similar nature is now imparted by a machine specially devised for this purpose. Such an one can be found illustrated on page 328, current volume.

THE death of De Vigny, one of the more gifted of the literary men of this generation in France, is announced.

THE VENTILATION OF MINING TUNNELS.—One of the great expenses incurred in running tunnels of any great length is for ventilation. Where it is necessary to sink air shafts every few hundred feet, the cost and delay will prove a serious drawback upon such enterprises. The plan last adopted in the Latrobe (Cal.) Tunnel seems to be working admirably, avoiding much of the great expense, and at the same time answering the purpose better than the ordinary air shaft. When this tunnel had reached a length of only a few hundred feet, it was found necessary to sink an air shaft, and at F street another; at this point the bottom of the shaft was closed up with the exception of a hole about ten inches square, through which passed a wooden box flume of that size, by which the air is conducted into the further extremity of the tunnel. The draft is so strong that no other air shaft has yet become necessary, and it is thought no more will be required. A candle held at the mouth of the flume will be instantly extinguished. Throughout the whole of the great distance which this flume supplies with air the tunnel is cool and pleasant, and a person can breathe with almost as much ease as in the open air.

THE ACCIDENT ON BOARD THE PATAPSCO.—The explosion of a shell or cartridge within the turret of a monitor, either by penetration from the outside or by accident, has been regarded as one of the severest disasters to which they could be subjected. The *Patapsco* has had this experience—one of the cartridges for her 8 inch rifle gun, as I mentioned in my last letter, having accidentally exploded whilst being rammed home. Fortunately, the result was not as disastrous as might have been expected. No damage was done to the guns, the turret or its machinery. Two guns' crews were in the turret at the time. Two men, who were handling the cartridge when it exploded, were blown to pieces, their remains being scarcely distinguishable. All others in the crew were thrown from their feet and stunned, more or less, but not seriously injured. Lieut. Rance was rendered senseless and deaf for several hours.

DEFICIENCY IN THE CORN CROP.—In regard to corn, it is estimated that the crop falls short of that of last year, 137,540,588 bushels. The crop of 1862 is estimated at 536,704,474 bushels, exported 11,680,342. Leaving for domestic consumption 575,015,132 bushels, or 125,860,238 bushels more than has been raised this year. If the same amount shall be exported this year as last, then we have the actual deficiency of 137,540,580 bushels. The present unsettled state of our currency, and the high rates of exchange, render it more than probable that a larger amount will be exported in exchange for foreign goods or gold.

THE ADVANTAGES OF SINGING.—Singing is a great institution. It oils the wheels of care—supplies the place of sunshine. A man who sings has a good heart under his shirt-front. Such a man not only works more willingly, but he works more constantly. A singing cobbler will earn as much money again as a cobbler who gives way to low spirits or indigestion. Avaricious men never sing. The man who at tacks singing throws a stone at the head of hilarity, and would, if he could, rob June of its roses, or August of its meadow larks.

AT Manchester, N. H., the cotton mills extend for miles, lofty, compact, and handsome buildings, surrounded by a population of twelve thousand persons, all connected with the factories. Handsome streets, commanding brick buildings, and an air of excessive neatness and comfort prevailing everywhere, give indisputable evidence of prosperity and contentment. Some, if not all of these establishments, have since the war made enormous profits—one of them in particular has realized a million of dollars net within the last twelve months.

CHOCOLATE, the flour of the cocoa-nut, was first introduced in England from Mexico in 1520, and soon became a favorite beverage in the London coffee-houses.

CONVERSATION.—The first ingredient in conversation is truth; the next is good sense; the third, good humor; and the fourth, wit.

THE manufacturing establishments at Cohoes, N. Y., pay Government taxes to the amount of over twenty-five thousand dollars.

OBSTRUCTIONS IN CHARLESTON HARBOR.—One of the *Catskill's* boats, whilst on picket lately, cut away four of the barrel buoys which support the first line of rebel obstructions in the channel, between Sumter and Moultrie. They are large, heavy casks, thickly tarred, and anchored in groups of three or four together, at intervals across the channel. They support a heavy hawser, to which is suspended substantial nets, designed to foul the propellers of the Monitors. Not much importance is attached to these obstructions by our navy, and the rebels do not themselves probably depend upon them. Those further up the harbor, across the Middle Ground channel, are of a more serious character. Another exchange says:—"The recent high tides have swept out of Charleston harbor the much-feared and talked-of 'obstructions.' These last float up high and dry on the beaches of Morris and Folly Islands, and are instantly seized by the men and converted into fire-wood and tent frames. Four full-sized pine trees, 50 feet long, are lashed transversely with spars, at distances of 14 feet apart. These rafts were fastened together, and marked in series by upright poles across the north channel of Charleston harbor. Attached to them were torpedoes, made of lager beer kegs, fitted with conical ends of wood, and filled with powder, into which a wire was inserted. Behind these were linked railroad bars, some of which, entangled with the raft, have also been driven ashore.

PARAFFINE.—Paraffine possesses certain properties which render it useful in the laboratory. It may be advantageously substituted for oil in baths, as it endures a high temperature without evaporating or emitting any unpleasant odor. Filtering paper, after being soaked in it, may be kept several weeks in concentrated sulphuric acid without undergoing the slightest alteration. From this property of paraffine it may be advantageously applied as a coating to labels on bottles containing strong acids; fluoric acid, even, does not act upon it, except it be heated. Paraffine appears also to be useful in preserving fruits. Apples, pears, &c., coated with it retain all their freshness during several months.

DISCOVERY OF A SAND IMBEDDED TOWN IN FRANCE.—A singular discovery, it is said, has been made on the French coast, near the mouth of the Garonne. A town has been discovered buried in the sand, and a church has already been extracted from it. Its original plan shows it to have been built near the close of the Roman empire. The original paintings, its sculptured choir and capitals, are adorned with profuse ornaments, which are attracting a large number of visitors. This is all that remains of those cities described by Pliny and Strabo, although the Gulf of Gascony abounds in ruins of ancient cities.

RAPID RAILROAD CONSTRUCTION.—Gen. D. C. McCullum, formerly Superintendent of the Erie Railroad, is now Government Engineer of Railways. Lately there was accomplished, under his direction, a feat without a parallel in railroad construction. The thirty miles of railroad recently destroyed by Lee's army, was rebuilt; and, in doing so, the ties were prepared, and the main track and switches laid, 600 feet of bridging (some of which was 60 feet in height), twenty culverts and ten water tanks, constructed, all within the space of three weeks!

QUEER.—Two eminent English writers on mechanical subjects, D. K. Clark and Zerah Colburn, are sparing over the authorship of certain ideas on the theory of boiler explosions; said ideas being utterly devoid of practical value, or tending in any manner to clear up the cloud of mystery which hangs over the cause of disasters arising from the use of steam.

It is said that pumpkins fed to milch cows have a tendency to dry up or diminish the quantity of milk, but if the seeds are removed before feeding, the flow of milk will be augmented.

ANOTHER new metal has been discovered by a Swedish chemist, M. Bahr, in a mineral resembling or thite, found in the isle of Roensholm. He has given it the name of *wasium*, and the mineral he calls *wasite*.

THE Austrian Government has recently purchased machinery for making rifles, of a firm in Hartford, Conn.

FIFTY tons of grapes passed through Detroit, one day last week.