Miscellaneous.

THE ATLANTIC CABLE.

The London *Teleyraph*, of May 20, has the following interesting account of the preparations on board the Great Eastern for laying the ocean telegraph cable:

DIFFERENCES BETWEEN 1858 AND 1865.

A visit was paid to the Great Eastern a few days since by a large party of the directors' friends, and it may be said that all who understood the preparations which they saw came away with a greatly strengthened confidence in the future of the new cable. Since 1858, when the first Atlantic line was laid, the advance that has been made by the scientific world towards comprehending electrical phenomena is very great.

It has been said, by a man well qualified to speak on the subject, that electric science has passed, since that time, from its childhood to its maturity. So far as the phenomena connected with long electric circuits were concerned, we had in 1858 no knowledge whatever. The instruments in common use were unsuited to receiving signals through a great length of cable; the necessity of providing for the conductor an insulation so perfect as to approach an absolute condition was inadequately appreciated. The best preliminary test for a long cable had not been devised, and the old Atlantic telegraph was laid without having been subjected to any searching test on shore. Everybody had advice to give concerning the management of the wire, but no one recommended the precautions which subsequent experience has shown to be necessary.

When the signals began to fall the battery power was augmented, and electro-magnetic induction coils, which rapidly helped on the destruction of the conductor, were put in circuit. No one thought of "nursing" the cable, of humoring its feeble attempts at articulate utterance, and of finding out what it said rather by listening acutely than by constantly calling on it, in the language of the Victoria gallery, to "Speak up." The old cable, however, is dead and gone. Part of it has been picked up and applied to ignoble uses, as a race-horse past his work may be put into the shafts of a hansom. Part of it has been abandoned, and lies where it must rest till the end of time, in the "dark, unfathomed caves" of the deep sea. Let us turn to the practical present.

ON BOARD THE "GREAT EASTERN."

The Great Eastern looks just now more like an engineer's workshop than a sea going ship. The vast expanses of her deck are covered with wooden sheds and piles of timber. There are smith's forges below, and between the decks you might fancy yourself in a machinist's factory. The great engines of the ship, it is true, have lost the bright look of machinery which is in constant use; and the huge dull masses of iron seem asleep, or in a trance. If you descend the ladders which lead to the boilers and furnaces, an expedition which is more like going down a mine than any other to which it can be compared, you find yourself in the midst of darkness, solitude and cold, but in those regions of the vessel where the cable is being shipped and watched, there is every sign of keen, vigilant intelligence. When you understand what is being done, you see something more than this; that scientific foresight of the highest order directs every step, and that the thick, tarry rope, coarse to appearance, which lies coiled away under water in the tanks of the ship, is manufactured, scanned and tested with as much care as the nicest optical instrument in an astronomer's observatory, or the most delicate apparatus of fragile glass ever applied to the careful experiments of chemistry.

THE SCIENTIFIC TESTS.

It seems impossible that there can be any fault in the Atlantic cable when the Great Eastern goes to sea. To say nothing of the tests applied to it at the manufactory, it is tested not alone after it has been taken on board, but during its delivery into the ship. As soon as a length is brought alongside, one end is connected with the coils already on board, and the other end with the instruments in the testing-room. The circuit is thus made through the whole extent of the coil, the portion on board and the portion alongside. The process of hauling in then commences, and the insulation continuously observed. The instruments in the testing-room record the smallest deviation from absolutely perfect insulation. It shall be understood that an insulation which shall be quite perfect, as an electrician understands the word, is not attainable. A piece of metal separated by means of the purest glass and inclosed in the driest atmosphere that can be obtained, will, if charged with electricity, lose that electricity after a time. In speaking of insulation we must therefore be understood to mean an approximate condition. But the approximate in the case of the new Atlantic cable comes so near to perfection that this rough, tarry rope is a scientific wonder.

The last dying pulsation of the old Atlantic cable was forced through it by means of a galvanic battery, consisting of two hundred and forty cells. The submarine telegraph from London to Amsterdam is habitually worked with a battery of fifty cells, and such a battery is commonly used for the other submarine lines of Europe. Signals have been repeatedly sent through more than thirteen hundred miles of the cable now on board the Great Eastern by means of one cell. Galvanic currents so feeble that they could not have been felt by the hand, and might have been passed harmlessly through a circuit completed by the operator's tongue, can be used to convey messages along a length of cable that would very nearly stretch from London to St. Petersburg. Over needle instruments, such as those in ordinary use for land telegraphy, a current from one cell would be powerless.

To record such faint pulsations of electricity, it is necessary to use Professor Thompson's mirror galvanometer. This beautiful instrument consists of a mirror about the size of a fourpenny piece, made of microscope glass, and so thin that it weighs only a grain. On the back of this mirror a minute magnet is fixed, and thus supplemented it is suspended by a silken fibre in the heart of a coil of wire, so that any current passing through the coil deflects the magnet and the mirror along with it. A ray of light reflected by the mirror falls on a scale, distant about 18 or 20 inches, and reveals its faintest movements. Different combinations of these movements represent the different letters of the alphabet, and thus the apparently erratic wanderings of a ray of light are made to convey intelligence. An instrument of this kind is constantly used to test the cable as it is hauled on board; and if any fault had existed it could not have passed without detection. Up to this time, when they are on board the ship and alongside 1,970 miles of cable, no fault has been discovered.

THE IMMERSION.

The machinery for paying out is not yet on board, but is being put together at the Greenwich works. The process of immersion will take about a fortnight. The beginning of the shore end will be laid by a small vessel, which will meet the Great Eastern about twenty miles from the Irish coast. The cable will then be passed on board, connected with that in the great tanks, and the big ship will begin her voyage. To the uninitiated this process of cutting and joining the cable appears very mysterious, but the engineers who are used to the work face it without hesitation. The joints do not really endanger either the insulation or the strength of the cable, as wherever they are made the external and conducting wires are spliced along a considerable length—sometimes not less than thirty yards—and the gutta percha carefully put on in separate layers, firmly pressed together by means of warm irons. The completeness of the joints is tested by laying it in an insulated metallic vessel containing water, and ascertaining, by means of tests applied to this vessel, whether any electricity escapes from the joint as a current is passed along the cable.

PROBLEMS OF POPULATION.—The Twenty-second Annual Report made to the Secretary of Massachusetts, in relation to births, deaths and marriages, presents some curious figures. They relate to the year 1863, during which 15,692 boys were born, and 14,579 girls. The excess of male deaths over female, was 1,264; which restores the balance of the sexes. The effect of the war is shown in the fact that, compared with the annual average for the five preceding years, there is a decrease of 4,423 births, or 5,737 less than in the year 1860; a diminution of 405 marriages, or 1,529 less than in the year 1860; and an increase of 6,552 deaths. The natural increase to the population of the State, that is, the excess of births over deaths is, therefore, only 2,563, which is 6,738 less than in the year 1862, and 10,420 less than in the year 1861. The number of marriages (10,873) was 141 less than in 1862, and 405 less than in 1860. These are also the results of the war. The figures show a slight fractional increase of longevity; and the whole population is estimated at 1,250,000.

But the most remarkable fact is that indicated by the parentage of children born. Of these, 13,066 were of purely American parentage; 14,540 of purely foreign; and 2,144 were mixed. The preponderance of foreign over native births continues to increase year after year! What is the cause and what the result? That it is owing to the greater prolificness of the foreign race is evident from the fact that the majority of married couples are American. In 1853 the percentage of strictly American marriages was 59.61, which steadily increased somewhat, till in 1857 it went down to 55.44; since then it has been gradually rising, till in 1863 it was 62.10, and the preceding year was as high as 63.93. The war, which has drawn largely from the ranks of marriageable foreigners, accounts for this. But despite this, the fact remains that the majority of the children born in Massachusetts are of foreign parentage. The natives in greater numbers get married, but the foreigners get the children! It looks as if the philanthropic women of Massachusetts devoted their attention to the interests of humanity in every way but the simple, old-fashioned, right way. Looking with intent eyes at Gariogoola Gha, they forget the interests of home. The philanthropic lady who dropped her infant in the fire while she was penning a tract upon the elevation of the negro, sacrificed the practical to the theoretic. The women of Massachusetts give out their babies, like their washing and ironing, to the Irish "to be done." This is literally labor-saving, and is very convenient, doubtless.

But think of the consequences! In 20 years Massachusetts will be nothing but an Irish colony, with an infusion of German! There are already some hundreds of thousands of this class of population of the second generation—born there, but of unmixed foreign parentage. We have no doubt these are active contributors to the population. Estimate, in addition to these, the annual preponderance of purely foreign births, 1,500 a year, and the influx of emigration, and take into consideration the geometrical rule of population familiar to the readers of Malthus! In 20 years what Gen. Scott once called the "rich Irish brogue" and the "sweet German accent" will displace the musical nasality of the Yankee in its very stronghold.—[Albany *Argus*.

A SOLID STREAM OF FISH.—A singular sight is presented just now in the immense amount of fish passing from the Lower to the Upper Sink of the Carson. This last spring the two Sinks became so low by evaporation that the slough between them dried up entirely, and they literally failed to connect. The Lower Sink soon became so strongly alkaline by evaporation that the fish in it have died by millions. Within a short time past, the river, having raised the Upper Sink, is now flowing through the slough into the lower one. The poor alkalied fish, as soon as they got a scent of the fresh water, started after it, following up the lead. An eye witness informs us that in the slough there is a solid streak of fish constantly passing up it two feet thick and four or five feet wide. They are of an inferior species of trout, such as are to be found in Washoe Lake, and the Indians, as well as the residents of the vicinity, are capturing them in all sorts of nets and contrivances. This run of fish will probably last for some time, as the Lower Sink is fifty miles in length by twenty-five in width, and contains numerous fish.—[*Va. Union*, June 25th.

CHILDREN.—When a child is hurt, never hush it. It is inexcusable barbarity; it is repressing its instinct, and for this reason if physical punishment is inflicted on a child it is perfect brutality. Cases are on record where children have been thrown into convulsions in their efforts to silence. A thousand times better is it to soothe by kindly words and acts, divert the mind by telling stories, by explaining pictures, or by providing it with new toys. We have many a time in our professional experience as to sick children, found more benefit to be derived from a beautiful or interesting toy than from a dose of physic. The greatest humanity a mother can exhibit in respect to her sick child is to divert it, *divert it*, DIVERT IT, in all pleasing ways possible, as we ourselves, who are larger children, feel sometimes really sick, when a cheerful face and much-loved friend has come in, and before we know it we have forgotten what was the matter with us.—[*Hall's Jour. of Health.*

DICTIONARY OF THE HAWAIIAN LANGUAGE.—It was once said, tauntingly. "Who reads an American book?" And it might very reasonably be asked, "Who ever saw a Hawaiian book?" During the past month there has been issued from the press here a book of some 500 pages, which I doubt not philologists in Europe and America will prize, if they get a sight at it. It is entitled; "*A Dictionary of the Hawaiian Language:* To which is appended an English-Hawaiian Vocabulary and a Chronological Table of Remarkable Events. By Lorin Andrews." The dictionary contains 15,500 words, and it is supposed that several thousand more could be added. The Hawaiian dialect is peculiarly interesting to the student of philology, on account of its isolated position, being the furthest removed from the original seat of the family to which it belongs in South-eastern Asia. It is but one member of that wide-spread family of language extending from Madagascar to the Sandwitch Islands, and from New Zealand to Formosa. Mr. Andrews, the compiler, was formerly a member of the American Mission, but has for some time been incapacitated by age and infirmities from active duties.—[*S. F. Bulletin.*

SAND AT SEA.—The Russian brig Olga, from Hamburg to this port, was visited by a singular phenomenon off the Cape de Verde Islands. Whilst three hundred miles from the nearest land, the air for two days was filled with fine red dust. The decks and rigging of the vessel were filled with it. Had the Olga encountered this dust in the Red Sea, the visitation would not have seemed so strange!—[*S. F. Alta.*

NEW TELEGRAPH LINE.—The United States Telegraph Company have contracted for the construction of a first class two-wire line from Chicago and St. Louis to the Pacific at San Francisco. The line will be completed to Denver this fall, and finished through next year. There is hope yet of having regular and cheap telegraphing.—[*Reese River Reveille.*

DIARRHEA CURED BY A SIMPLE PROCESS.—Lawson, a Swede, who has been several years in the army, and, having been wounded, is now attending the work in the hospital, wishes us to say that he has cured numerous cases of diarrhea by a simple tea of blackberry roots. We can fully endorse this remedy; and as it is within easy reach of many soldiers, we earnestly advise them to try it.—[*N. Y. Tribune.*

FOR THE BOYS.—Nine classes of company to be avoided, viz:

1. Those who ridicule their parents or disobey their commands;
2. Those who profane the Sabbath, or scoff at religion;
3. Those who use profane or vulgar language;
4. Those who are unfaithful, play truant, and waste their time in idleness;
5. Those who are of a quarrelsome temper and apt to get into difficulties;
6. Those addicted to lying;
7. Those of a cruel disposition, and who take pleasure in torturing or maiming animals;
8. Those who drink liquor;
9. Those who gamble.

WATER-PROOF GLUE.—Render glue perfectly soft, but not liquid, in cold water. Then dissolve it by a gentle heat in linseed oil. It dries almost immediately, and water will not affect it.—*Genessee Farmer.*

Varieties.

—Daniel Webster visited old John Adams a short time before his death, and found him reclining on a sofa, evidently in feeble health. He remarked to Mr. Adms: "I am glad to see you, sir; and I hope you are getting along pretty well."

"Ah, sir, quite the contrary. I find I am a poor tenant, occupying a house much shattered by time. It always trembles with every wind, and what is worse, sir, the landlord, as near as I can find out, don't intend to make any repairs."

—An old washerwoman persisted in hanging her clothes to dry on the railings of a church, and after repeated prohibitions from the church wardens, she at last came out with the following burst of eloquence: "Lord bless ye, sir, ye wouldn't a go an' take the bread out of my mouth, would ye? 'Sides sir, parson says cleanliness comes next to godliness."

—Theodore Hook once saw an exceedingly pompous man walking in a street in London, whom he immediately accosted thus: "Sir may I inquire if you are anybody in particular?" He then walked off without waiting for a reply.