

The Phonograph and Telephone.

We had some notice of the marvellous developments in the conveyance of sound by means of this wonderful instrument. Experiments are constantly shewing further discoveries, and now we dare not fix any limits as to what may possibly result from further investigation. It is now a depository of sounds which may be drawn upon at any future time. Almost realizing the marvellous fictions of Baron Munchausen where he tells of the tones of his music being frozen to the walls, and coming out unimpaired under the influence of a thaw.

The Telephone is unquestionably the most wonderful mechanical contrivance of the day. The following description of the apparatus and the *modus operandi* is from the *N. Y. World*.

THE PHONOGRAPH.

Mr. Thomas A. Edison, of Menlo Park, N. J., was formerly a telegraph operator, but for several years past has given up his entire time to inventing instruments connected with telegraphy. His last invention—the phonograph—is as simple as it is wonderful.

The instrument is composed of a brass cylinder about four inches in diameter, and about ten inches long, with axles ten inches long on which a thread is cut coming from either end and passing through nut journals. To one of these axles a crank is attached, by which the cylinder is turned, moving either way as the crank is moved. The cylinder, from one end of it to the other has small lines cut into it and around it. By the side of the cylinder and resting on it is a pin attached to a vibrating plate, over which is a mouthpiece with a small hole leading to the plate immediately over the hole. When the phonograph is to be used a sheet of lead paper is spread over the cylinder, the words or sounds to be reproduced are made very close to the mouthpiece, and the vibrations in the air occasioned by their utterance caused the plate to move, and the pin indents the lead paper upon the cylinder, which, by the way, is turned by means of the crank during the operation. The words being spoken the paper is indented by the pin and the crank turns the cylinder back to its starting point. A funnel is then placed over the mouthpiece. Mr. Edison used one made of a plain piece of writing paper. The cylinder is then turned over the same space it originally traversed and the sounds are reproduced accurately, and can be heard several feet around the instrument, varying always with the loudness of tone in which the words were spoken to the machine. After receiving the indentations made by the pin the lead paper can be taken off the cylinder, and by replacing it at any other time the words can be exactly reproduced. That is what Mr. Edison thinks will make the machine practically valuable.

When the reporter of the *World* entered the room in which the exhibition was given Mr. Edison was singing to the machine. "Tommy, make room for your uncle." The reporter expected when the funnel was placed over the mouthpiece only to hear inarticulate words reproduced, but he was astonished in hearing the words of the song quite as plainly as he heard them when uttered by Mr. Edison. Mr. Edison tried the effect of turning the crank slowly, and the slower it moved the deeper was the sound of the reproduction. As the crank was moved faster they came again to a shrill tenor.

Mr. Edison then said to the instrument, "Now is the winter of our discontent made glorious Summer," etc. Turning the crank slowly a *Richard* was heard to speak with deep and diabolic voice. Turning the crank rapidly, the same words were heard in a shrill and petulant voice, as though *Richard* was in a bad humor and did not care to play his part.

The *World* reporter was invited to say something to the phonograph. He approached the machine and stammeringly said to it: "The world is mine oyster and I shall not want." The instrument was readjusted, the crank turned again, and all that could be heard was "shall." The reporter was embarrassed, for he felt that the phonograph was prophetically mocking him. Mr. Edison, however, kindly explained that the reporter had so emphasized the "shall" that the other words were lost in the reproduction.

Several days ago Mr. Edison adjusted the phonograph to the telephone and succeeded perfectly in sending a conversation over the telegraph wires

from his laboratory at Menlo Park to Newark, a distance of seven miles.

The *Scientific American* of Dec. 22 has another article fully confirming and further shewing its capabilities: as follows:—

THE TALKING PHONOGRAPH.

Mr. Thomas A. Edison, recently came into this office, placed a little machine on our desk, turned a crank, and the machine inquired as to our health, asked how we liked the phonograph, informed us that it was well, and bid us a cordial good night. These remarks were not only perfectly audible to ourselves, but to a dozen or more persons gathered around, and they were produced by the aid of no other mechanism than the simple little contrivance explained and illustrated below.

Then follows the description of the apparatus:—

It should be understood that the machine illustrated is but an experimental form, and combines in itself two separate devices—the phonograph or recording apparatus, which produces the indented slip, and the receiving or talking contrivance which reads it. Thus in use the first machine would produce a slip, and this would for example be sent by mail elsewhere, together in all cases with information of the velocity of rotation of the cylinder of his reading apparatus to rotate at precisely the same speed, and in this way he would hear the tones as they were uttered. Differences in velocity of rotation within moderate limits would by no means render the machine's talking indistinguishable, but it would have the curious effect of possibly converting the high voice of a child into the deep bass of a man, or *vice versa*.

No matter how familiar a person may be with modern machinery and its wonderful performances, or how clear in his mind the principle underlying this strange device may be, it is impossible to listen to the mechanical speech without his experiencing the idea that his senses are deceiving him.

Here is a little affair of a few pieces of metal, set up roughly on an iron stand about a foot square, that talks in such a way, that, even if in its present imperfect form many words are not clearly distinguishable, there can be no doubt but that the inflections are those of nothing else than the human voice.

We have already pointed out the startling possibility of the voices of the dead being reheard through this device, and there is no doubt but that its capabilities are fully equal to other results just as astonishing. When it becomes possible as it doubtless will, to magnify the sound, the voices of such singers as Parepa and Titiens will not die with them, but will remain as long as the metal in which they may be embodied will last. The witness in court will find his own testimony repeated by machine confronting him on cross-examination—the testator will repeat his last will and testament into the machine so that it will be reproduced in a way that will leave no question as to his devising capacity or sanity. It is already possible by ingenious optical contrivances to throw stereoscopic photographs of people on screens in full view of an audience. Add the talking phonograph to counterfeit their voices, and it would be difficult to carry the illusion of real presence much further.

Interesting experiments have been made at Branford on Prof. A. M. Bell's telephone line to Tutelo Heights. A telephone was placed on various parts of the head, neck, trunk, and limbs of a speaker—even on the soles of the feet—and in every case the voice was heard at the other end of the line, 3½ miles distant. Except when issuing from the feet, the words though faint, were perfectly intelligible, as was proved by the immediate answers sent to the questions so singularly asked. The fact that the whole body vibrates with the voice has long been known. A deaf person, by keeping his hand on a speaker's chair, can tell, by feeling the vibrations, when the siter is talking. But that these vibrations can be heard as words and sentences is altogether a new fact, revealed by that wonderful little instrument—the telephone.

In the Branford experiments the region of the stomach was found to yield the best results. Nobody ever before supposed the word "ventriloquism" to describe a real fact; but it is now proved that we are all ventriloquists by nature, and that we speak from head to foot, through every fibre of our bodies. Can any use be made of this fact? Time will show.

The *North British Advertiser* of 29th ult., gives an account of some interesting experiments with the telephone

Drough the submarine cable between thublin and Holyhead, a distance of 67 miles. Conversation was freely maintained, and songs were sung on each side and heard and appreciated on the other. The articulation was excellent, but muffled, as though the speakers spoke through respirators.

For the Christian Messenger.  
Home Missions.

The January meeting of our Board was one of much interest. In reviewing the work of the past seven months we found that whilst there is much to inspire our brethren with confidence as to the success of this great enterprise, there is also much to awaken anxiety and constrain us to call urgently upon all our churches for more liberal and regular contributions.

Since May last thirty gospel laborers have been aided by our treasury, the expense incurred amounting to about \$2700.00. Of this amount \$1100.00 has already been paid. In order to pay the balance and meet our liabilities up to May 31st next, we shall need at least \$3000.00 in the form of contributions from our churches. We trust that a prompt and generous response will be made to the appeal which has just been addressed to our brethren throughout the province.

Rev. J. H. Robbins, our energetic and faithful General Agent, has deemed it best to discontinue his agency in connection with Home Missions for a few months. The travelling in winter is usually attended with so much difficulty and exposure that health is often imperilled, whilst a very small amount of work can possibly be accomplished. Bro. Robbins reports having travelled 1000 miles during the past three months, visited 122 families, preached 57 sermons, attended 38 other meetings, collected \$260.17 and received subscriptions for \$45.00. Other contributions also were promised, which will no doubt be forwarded at an early date.

A subsidy of \$55.00 was voted to aid Rev. W. H. Richan in carrying on missionary work at Barrington Head and Villagedale. Pubnico, one of Bro. Richan's former stations, will be supplied by Rev. W. B. Bradshaw. At Forest Glen, Yarmouth County, there is a little church which has been much neglected. A mission of six weeks was given Bro. Z. C. Vickery, licentiate, to labor in this field.

In response to our solicitation for County maps two brethren have kindly consented to furnish us with maps of Colechester and Annapolis Counties. We are deeply grateful for the favors. We shall be glad to receive maps of the remaining counties. Such parcels can be forwarded to S. Selden, Esq., Halifax, who will have the kindness to forward them to Yarmouth.

W. H. WARREN,  
Cor. Secretary.  
Yarmouth, Jan. 11, 1878.

The Christian Messenger.

Halifax, N. S., January 23rd, 1878.

SABBATH DESECRATION.

Skating on Sunday is a species of Sabbath breaking that is indulged in to a much greater extent, we believe, than formerly. It may be regarded by some as comparatively harmless, and yet we do not suppose that Christian people would defend it as quite in harmony with the spirit or design of the institution as a day of religious rest and worship. We fear that Sabbath desecration is being encouraged in Halifax to some extent by the mail arrangements for Europe—having the mails arrive in Halifax and put on board the steamer in the afternoon of the Sabbath day. The less thinking part of the community are largely influenced by the acts of their rulers, and where there is any disregard of the day on their part the people are very likely soon to imitate them. Surely as there are six days for labor and but one for rest, one of the six might be chosen for the embarkation of the mails, without employing the Sabbath for that purpose. We do not know how it would affect the other points of departure, but it would be hailed as a boon by the officials in Halifax, and, we suppose, all along the line if another day were chosen instead of that recognized by Christianity as the Lord's Day.

We are no sticklers for severe denunciation of all enjoyment on Sunday. The day was doubtless set apart to be a day of rest and recuperation. It being a law of God, violation of this one leads directly and commonly to

depreciation of other commands, and so brings on a host of evils in its train.

We were sorry to learn that Mr. Jones thought it necessary on Sunday last to take a special train for Ottawa. Arriving at Moncton, however, we are told he learned that he might be sworn in as Minister of Militia in Halifax. He consequently returned at once to the city, and was sworn in on Monday, Mr. Vail having failed to secure his election.

The apostolic injunction, "Rulers are not a terror to good works, but to the evil" is as much to rulers as to the ruled, we hope, therefore, that should he (Mr. J.) be elected for this constituency, being a member of the Government, he will realize the importance of his position, and, on future occasions, avoid, as much as possible, the employment of the Sabbath day in travelling, but will take the other days for travelling by railway as more safe and commendable before God and men.

POLITICAL.—In the confusion caused by the change of the original day named for the election, we last week gave the wrong date. The Halifax Nomination took place yesterday. After the defeat of Mr. Vail in Digby, it was arranged that Mr. Jones should take the office of Minister of Militia, held by Mr. V. Being elected on this would save having another election. He, Mr. J., was consequently sworn in as Minister of Militia, on Monday, by General Haley. The candidates for Halifax are therefore HON. A. G. JONES, Minister of Militia, and M. H. RICHET, Esq., Mayor of Halifax.

As usual in such contests, both sides are confident of success. What will be the result will not be known till after Tuesday next, when the polling will take place. We shall have exciting times in the city till then.

A large political meeting was held on Saturday evening in the Drill Shed. That immense building was crowded, and hundreds were unable to get in. Hon. Dr. Tupper spoke first for an hour and a quarter. Mr. Jones then occupied the same length of time. Then Dr. T. had three-quarters of an hour, and Mr. J. had three-quarters of an hour, to close. It was then half-past 11 o'clock, and the meeting closed. Of course it was a most exciting time. The telegram received from Digby being read gave additional excitement to all parties on the occasion.

HELP FOR ST. JOHN.—The visit of Rev. J. D. Pope to England on behalf of the building funds of the St. John Baptist Churches, realized about five thousand dollars. A letter from Rev. G. M. W. Carey to the *Canadian Baptist* last week gives a total of sums received in Canada since October 3rd, of \$546.88.

The Society for Improving the condition of the Poor is now in full operation. Funds are required. The visitors are greatly restricted in giving supplies to the necessitous. They deserve warm and generous support from their fellow citizens who cannot go to find out the deserving poor.

The enquiry of "Church Clerk" for "Information," is not sufficiently full and clear to enable us to determine the merits of the case. Disciplinary action in a church should be inaugurated only in a spirit of love and carried through in the same spirit. Any other motive is sure to give trouble and result in producing alienations and confusion. J. E. B. will accept thanks for papers from Nevada, Colorado. Some friend has sent us a copy of "The Heights" a Boston paper with an excellent sermon by Rev. Dr. Lovimer entitled "Retrospection an element of Progress." Thanks.

CORRECTION.—In the Report of the "Ordination at Berwick" last week instead of "Questions were asked the candidate by Rev. D. O. Parker" &c. It should have read as follows:—

Questions were asked the candidate by Rev. E. O. Read, after which hands were laid on, and the Ordination Prayer was offered by Rev. J. Murray.

The hand of fellowship was then given by Rev. D. O. Parker, &c.

In the article on 2nd page "Notes on the College Fund" at Hillsboro, for Rev. J. M. Perry, read Rev. J. M. Curry. The amount subscribed in Harvey was \$58 instead of \$38.

Our generous brother Kempton kindly says in reference to these mistakes "I wonder rather that there are not more of them instead of less."

We do not allow that there should be any. Our compositors have all sorts of manuscript to decipher, and

ought to be able to read anything that is written, even if it were as bad as Horace Greeley's.

If dates are left out of marriage or death notices by the writers, should not the compositor be expected to insert the right date?

NOTICES OF BOOKS RECENTLY READ.

I. THE LIFE AND EPISTLES OF ST. PAUL. By Thomas Lewin, Esq., M. A., F. S. A., &c., &c.: two volumes: pp. 414, 487.

This is a splendid work, beautifully printed, illustrated and adorned by first-rate engravings, representing landscapes, views of celebrated towns and cities, portraits of great men, and useful maps of ancient countries:—it will be of great use to biblical students. The price (from ten to fifteen dollars in this country) will place it out of the reach of many to whom it would render great service, especially by the correct historical and geographical information which it furnishes. For critical purposes, Conybeare and Howson's well-known work will be perhaps generally preferred:—they give their own translation of the apostolic epistles, while Mr. Lewin retains the authorised version, revising and correcting wherever he judges it necessary or expedient. We advise those who have the money to spare to purchase both works.

II. THE CREEDS OF CHRISTENDOM, with a History and Critical Notes. By Philip Schaff, D. D., L. L. D., Professor of Biblical Literature in the Union Theological Seminary, N. Y. Three Volumes, pp. 941, 557, 876.

Creeds are records of theological views held at the time by those who constructed them, and representing the current divinity of the times. None of them are written in New Testament style. To require subscription to any human formula compiled ages ago, is inconsistent with the progress of thought and of improvement in criticism. We may hold, substantially, certain truths which are comprised in most of the creeds generally regarded as orthodox, and which contain the very marrow of the gospel, while we should decline to subscribe to any of the creeds, because they require acceptance of words and sentences involving minutiae of thought which we cannot swallow, and because no ecclesiastical Body is authorised to demand such submission.

Dr. Schaff's is a very laborious work. The first volume contains "The History of Creeds." In the second we have "The Greek and Latin Creeds, with Translations." The third furnishes "The Evangelical Protestant Creeds, with Translations."

Those who are collecting theological curiosities should purchase this work, place it in their libraries, and let it rest in peace, except when now and then a member of the *Dryasdust* fraternity asks the privilege of consultation.

III. EIGHT MONTHS AT ROME DURING THE VATICAN COUNCIL. By Pomponis Zetoz: pp. 340.

The author's real name is not given. It has been stated, but how truly we cannot affirm, that he is a member of the British peerage. This, however, is certain, that he is a liberal Roman Catholic, and that he has written his narrative fairly and fearlessly. The Vatican Council was the "Trent of the nineteenth century," with additions, which were not improvements. The Pope was master in both places, the principal differences being, that at Trent he governed by his appointed Presidents, to whom orders were sent from time to time, while at Rome he himself held the reins and applied the stimulus. Popery before the Vatican Council was the Popery of Trent, as defined by Pope Pius IV. Popery since the Vatican Council is the Popery of Pope Pius IX—less enlightened, more superstitious,—shorn of freedom.

Volumes like this are very useful. We are reminded of the words of God by the prophet, "We would have healed Babylon, but she is not healed" (Jer. li: 9).

IV. AUTOBIOGRAPHY OF THE REV. WILLIAM ARNOT, and Memoir, by his daughter, Mrs. A. Fleming: pp. 511.

An instructive and edifying biography. Dr. Arnot was an eminently good man, and his life cannot be studied without profit.

V. ROBERT BUCHANAN, D. D. An Ecclesiastical Biography. By the Rev. Norman L. Walker: pp. 574.

The story of the Disruption, in 1843, is a grand story. There is nothing like it in ecclesiastical records. The financial results are marvellous. It was