

Christian Family.

MISS MARY STUMP, EDITOR.

Qualifications of an Elder.

He must be blameless;
 Vigilant;
 Sober;
 Of good behavior;
 Given to hospitality;
 Apt to teach;
 Patient;
 Rule his own house well;
 Feed the church of God;
 Having the children in subjection;
 Of good report of them who are without;
 Just;
 Holy;
 Temperate.

He must not have more than
 One wife;
 Not given to wine;
 No striker;
 Not greedy of money;
 Not a brawler;
 Not covetous;
 Not a new member;
 Not self-willed;
 Not soon angry.

THE DEACON.

Must be grave;
 Pure conscience;
 Husband of not more than one wife.
 Ruling his house well;
 Not double tongued;
 Not given to much wine;
 Not greedy of money.

Old Time Comforts.

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We live in the so-called "age of progression," yet the venerable, snowy heads, paint such interesting pictures of their homes in the East where they spent so many happy years, long before a white man had trod the pathless wilds of our Western world. Our ancestors were habituated to toil and hardship, and must have been a self-denying, self-reliant people; but they undoubtedly, enjoyed a deal of comfort, for it seems to be their chief delight to relate their past experience, and to tell how happy they were in their home-spun clothing, and log houses. The vivid pictures of their kitchen which their imagination depicts surely would be a novelty to us, with its old wooden clock ticking away so cheerfully in the corner, the high desk with its antique curiosities and hidden drawers, the huge old fashioned fire place with its black logs and blazing embers, casting gleams of light over the room which illuminated the plain home made furniture. The children sat quietly around preparing their lessons, or listening to the wisdom of their superiors, and now and then gazing steadily into the fire, tracing out fanciful and grotesque images, from the glowing coals in the old fashioned fire place.

What a shocking sensation the invention of the stove created when it was first introduced among the New England settlers. But few would dare think of testing its qualities for fear it would burst and hurl its now precious pieces at them.

What changes the past cycles have wrought! Ingenious minds are ever busy trying to develop given principles, to make new discoveries through which the world may grow wiser and better, and to revise the old into new. The gradual transition from year to year does not seem so great when we live and progress with the world, as it does when we review the space of a hundred years and compare the former circumstances with those of the present age. The customs of our ancestors were so different from those now existing, and sometimes we think them so unpleasant; but, alas! with wealth, inventions of almost every description, and all the improvements of our age, so much of the contentment, good cheer and happiness, that pervaded the home of "ye olden time," is buried deeper and deeper, as the rapid years roll onward.

You cannot prevent the birds of sadness from flying over your head, but you may prevent them from stopping to build there.

A Marvelous Discovery.

Menlo Park, N. J., the residence of Prof. Thomas A. Edison, is a small place on the line of the Philadelphia and N. Y. railroad, two miles north of Metuchen. This gentleman is the inventor of the automatic telegraph, quadruplex and sextuplex dispatches, the carbon telephone, the stock indicator, the electric pen, the airphone, the marvelous speaking phonograph, and a score or more of similar machines. He is also the discoverer of the electro-motograph, by which dispatches may be telegraphed without magnetism. Scientific men regard it as his greatest discovery, and predict that it will some day prove of immense value.

Mr. Edison's manufactory stands forty rods west of the depot. A high bank shuts out the view from the car-windows. The building is a long wooden structure, something like an old-fashioned country church. It faces to the east. Nine lightning-rods pierce the sky above it. A dozen telegraph wires are led into it by sentry-like poles connecting with the main line along the railroad. The front door opens directly into the office. The writer entered. A man sat at a table studying a mechanical drawing. An inquiry for Mr. Edison drew from him the words, "Go right up stairs, and you'll find him singing or talking into some instrument."

The stairs were climbed, and we stepped into a long room forming the second story. It was an immense laboratory, filled with electrical instruments. A thousand jars of chemicals were ranged against the wall. A circle of kerosene lamps were smoking viciously on an empty brick forge. Their chimneys were the essence of blackness. There was no disagreeable smell, for the smoke was borne off by the draft of the forge. An open rack loaded with jars of vitriol stood in the middle of the room, and the rays of the sun struck through them, flecking the floor with green patches. The western end of the apartment was occupied by telephones and other instruments, and there was a small organ in the southwestern corner.

Prof. Edison was seated at a table near the center of the room. He looked like anything but a professor, and reminded us of a boy apprentice to an iron moulder. His hands were grimy, with soot and oil; his straight, dark hair stood nine ways for Sunday; his face was entirely beardless, but sadly needed shaving; his black clothes were seedy, his shirt dirty and collarless, and his shoes ridged with red Jersey mud; but the fire of genius shone in his keen gray eyes, and the clean-cut nostrils and broad forehead indicated strong mental activity. He seems to be always looking for something of great value, and to be just on the point of finding it. Unfortunately he is quite deaf, but this infirmity seems to increase his affability and playful boyishness. A man of common sense would feel at home with him in a minute; but a nob or prig would be sadly out of place. Though but thirty-one years old, the occasional gleam of a silvery hair tells the story of his application.

The Prof. was manipulating a machine upon the table before him. He had something resembling a gutta-percha mouthpiece of a speaking-tube shoved against a cylinder wrapped in tinfoil, which he turned with a crank. The small end of a tin funnel was clapped over the mouth-piece, and strange ventriloquial sounds were issuing from it. He shook hands, and pointing to the instrument said:

"This is my speaking phonograph. Did you ever see it and hear it talk?"

The reply was a negative. Thereupon, he picked up the gutta-percha mouthpiece, saying, "This mouthpiece is simply an artificial diaphragm. Turn it over, and you see this thin disk of metal at the bottom. When

ever you speak in the mouthpiece, the vibrations of your voice jar this disk, which, as you see, has in its center a fine steel point. Now for the other part of the machine. Here is a brass cylinder, grooved something like the spiral part of a screw, only much finer. I wrap a sheet of tinfoil around the cylinder, and shove the mouthpiece up to it so that the tiny steel point touches the tinfoil above one of the grooves. I then turn the cylinder with a crank, and talk into the mouthpiece. The vibrations arouse the disk and the steel point pricks the tinfoil, leaving perforations resembling the old Morse telegraphic alphabet. They are really stereoscopic views of the voice, recording all that is said, with time and intonations. It is a matrix of the words and voice, and can be used until worn out. Now let us rest the cylinder, so that the steel point may run over the holes or alphabet made when we talked in the mouthpiece. The thin metal disk rises, and as the steel-point trips from perforation to perforation, opening the valves of the diaphragm, the words, the intonation, and accent are reproduced exactly as spoken. For instance, before you came up, I was talking to the instrument, and here is the matrix or stereoscopic view, if you please, of what I said," putting his finger on the tinfoil which still remained on the cylinder. "Now, I reset the instrument, sliding the cylinder to the right. Here the steel point starts at the same spot as when I talked through the mouthpiece, but its action is now controlled by the perforated alphabet. It repeats what I said. I use this sort of an ear-trumpet to bring out the sound, so that you can hear it more distinctly. Listen."

He placed the small end of the funnel over the mouthpiece, shoved the mouthpiece against the cylinder, and turned the crank. The following words chased each other out of the funnel:

"Mary had a little lamb,
 Its fleece was white as snow,
 And everywhere that Mary went,
 The lamb was sure to go—to go—
 Ooh—ooh—ooh—ah!
 Cockadoodle doo—ah!
 Tuck-a-tuck—a tuck
 Tuck—ah! tuck ah!"

The cylinder was again set back, and the crank turned very slowly. The effect was ludicrous, for the Prof. had originally pronounced the words with great gravity and dignity, and the drawing way in which the instrument repeated them would have made a horse laugh. The cylinder was then turned very fast, and the words flew out of the funnel so rapidly that they struck the ear in a confused mass. But a most extraordinary effect was produced when the Professor turned the cylinder backward:

The instrument is so simple in its construction, and its workings so easily understood, that one wonders why it was never before discovered. There is no electricity about it. It can be carried around under a man's arm, and its machinery is not a fiftieth part as intricate as that of a sewing-machine. It records all sounds and noises. The Professor blew in it at intervals, and the matrix recorded the sound and returned it. He whistled an air from the "Grande Duchesse," and back it came clear as a life, and in perfect time. He rang a small bell in the funnel. The vibrations were recorded, and, on resetting the cylinder, the tinkling sound poured out soft and mellow. Mr. Edison coughed, sneezed, and laughed at the mouthpiece, and the instrument returned the noises true as a die. But, most remarkable, the instrument sent back the voices of two men at the same time. To illustrate. The Professor, in a deep bass voice, recited in the mouthpiece the first verse of "Bingen on the Rhine." A matrix was obtained, the machine reset, the funnel placed in position, and the crank turned. The words came out as though some tragedian was endeavoring to affect an audience

to tears. While the words were pouring out, the Professor shouted into the funnel several petulant exclamations. At the close of the verse the cylinder and its matrix were reset, and the recitation again came out of the funnel, interruptions and all, as follows:

A soldier of the legion lay dying at Algiers,
 "Oh, shut up!"—"Oh bay your head!"
 There was lack of woman's nursing, there was lack of woman's tears.
 "Oh, give us a rest!"—"Dry up!"
 But a comrade stood beside him while his life-blood ebbed away.
 "Oh, what are you giving us?"—"Cheese it!"
 And, bent with pitying glances to hear what he might say.
 "You can't recite poetry!"—"Po. lice! Police!"

It is impossible to describe the ludicrousness of the effect. The possibilities and capabilities of this remarkable instrument are wonderful. Dolls and toy dogs can be made to recite nursery ballads, and wax figures of notabilities can use the voice and language of their originals. A prominent showman has already taken steps toward the formation of a museum of wax figures similar to Madame Tussaud's in London. All the figures are to speak. Matrixes of the voice and words of a gentleman whose imitations of Edwin Forrest are astonishing, are to be secured and placed in the breast of a wax statue of the great tragedian. The voice and outward appearance of Mr. Forrest are to be perfectly copied.

"Why," says Mr. Edison, "Adelaide Patti can sing her sweetest arias, and by this instrument we can catch and reproduce them exactly as sung. The matrixes can be copied the same as stereoscopic views, and millions sold to those owning the machine. A man can sit down in his parlor at night, start his phonograph, and enjoy Patti's singing all the evening if he chooses. The same with Levi's cornet playing. A matrix of his solos can be produced, and a million copies taken, and Levi's solos and Patti's arias can be given ten thousand years from now as perfectly and accurately as when these great artists were alive.

The instrument can be used in a thousand ways. Say we hire a good elocutionist to read David Copperfield or any other work. His words are recorded by the machine, and thousands of matrixes of David Copperfield produced. A man can place them in the machine, and lie in bed, while the novel is read to him by the instrument with the finest grade of feeling and accent. He can make it read slow or fast, can stop it when he pleases, and go back and begin again at any chapter he may choose.

"To a certain degree," said Mr. Edison, "the speaking phonograph would do away with phonography. A man could dictate to his machine whenever he pleased, turn the machine over to an amanuensis, and let him write it out. A lawyer, through the machine, might make an argument before a court, even if he had been in his grave a year. An editor or reporter might dictate a column at midnight and send the machine up to the compositor, who could set the type at the dictation of the machine without a scrap of manuscript. I tell you there is no limit to the possibilities of the instrument. The price of the finest machine will be about \$100, but we shall sell inferior ones at a much lower price. The matrixes will be for sale like sheets of music, and can be used upon all machines.

One of the remarkable features of the invention is the fact that the diaphragm can be placed in steam whistles and made to talk like a calliope. The captains of ships at sea, miles away from each other, could converse without trouble. The steam whistles would throw any voice into articulated speech. With a metal diaphragm in the whistle of a locomotive, the engineer could roar out the name of the next station in a voice so loud

that it could be heard by every passenger on the train, and by every man within a distance of two miles. Placed in a steam fire-engine, the chief engineer could talk to every foreman in the department without difficulty, no matter how great the uproar.

"Why," said the Professor, "I could put a metal diaphragm in the mouth of the Goddess of Liberty that Frenchmen are going to put up on Bedloe's Island that would make her speak so loud that she could be heard by every soul on Manhattan Island. There is no end to its uses. It will sing songs and whistle. The Ansonia Clock Company, of Connecticut have one in their manufactory already, and it shouts 'Twelve o'clock' and 'One o'clock' so loud that it is heard two blocks off. One might be used as an alarm clock. If its owner wished to get up at a certain time in the morning, he could set the alarm, and at the appointed hour the machine would scream, 'Hello, there! Five o'clock! What's the matter with you? Why don't you get up?'"

The Professor calls the machine applied to steam whistles the airphone. He is now constructing one to put up in front of his manufactory, and intends to make it talk so that it can be heard two miles. Several of his speaking phonographs have been sent to England, where they have created a profound sensation. Mr. Edison says that he received a cable dispatch, offering him £3,000 and half the profits for the right to sell the instrument in that country.

"How did you discover the principle," asked the writer.

"By the merest accident," said the Professor. "I was singing in the mouthpiece of a telephone, when the vibrations of the voice sent the fine steel point into my finger. That set me to thinking. If I could record the actions of the point, and send the point over the same surface afterward, I saw no reason why the thing would not talk. I tried the experiment first on a strip of telegraph paper, and found that the point made an alphabet. I shouted the words, 'Halloo! halloo!' into the mouthpiece, and ran the paper back over the steel point, and heard a faint 'Halloo! halloo!' in return. That's the whole story. The discovery came through a pricking of the finger."

On being questioned concerning his telephone, the Professor said: "I went to work before Professor Bell did. Elisha Gray turned in at it, and got out the first machine. Bell's and mine came out about the same time. The machines are different. Bell's is what is called the magento telephone, and mine the carbon. Those kerosene lamps that you see smoking yonder are my carbon manufactory. I peel it from the shades, and press it into buttons for use in my telephone. Were it not for my deafness, I would have discovered the telephone eight months before. While trying an experiment my deafness led me off on a wrong track, and I was sloshing around on a false scent for months. But I have produced a good instrument. I have whispered into it here at Menlo Park, and been answered in a whisper by Henry Bently in the Western Union office in Philadelphia."

Here the clock struck three, and we started for the train. The Professor returned to his machine like a delighted boy, and as we left the house we could hear him gravely asking: "How far is it from New York to Albany, from Albany to Syracuse, from Syracuse to Buffalo, from Buffalo to Cleveland, from Cleveland to Columbus, from—" and so on until we were beyond hearing.—*Printers Guide.*

There is a burden of care in getting riches, fear in keeping them, temptation in using them, guilt in abusing them, sorrow in losing them, and a burden of account at last to be given up concerning them.—*Matthew Henry.*

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