

Scientific.

ORGANS FOR CHURCHES.

The best of all instruments for church use is, unquestionably, a good pipe organ; one which is sufficiently large and complete to be well proportioned, and which is skillfully and well made of suitable material. Such an organ has no rival as the instrument for large churches. In power, grandeur, variety and fitness, it is the "King of instruments."

But such a pipe organ is quite out of the reach of most congregations. Only here and there one can afford its great expense, if, indeed, it has a room large enough to afford space for the proper development of its powers, or to require it. It must be remembered that a really complete and well-proportioned pipe organ—one which could properly be regarded as a representative of its kind, and by which pipe organs as a class might fairly be judged—cannot be built for less than five thousand dollars. This is a moderate estimate of what such an instrument must now cost. Undoubtedly pipe organs are built at much less than this: even at hundreds instead of thousands of dollars, and it is not questioned that a very fair instrument, though small in size and limited in capacity, can be afforded for from fifteen hundred to two thousand dollars. In the attempt to produce low-priced pipe organs, various expedients are resorted to. One is to omit the large pipes, to save space as well as expense. The result of this is, of course, to destroy the proportion of the instrument, giving it power in the upper tones, but no sufficient bass. Another expedient is the use of cheap material. For the best quality of tones from metallic pipes, much pure block tin must be used, which is very expensive, and so must give place to baser metal.

A pipe organ is, from its nature, an expensive instrument, and if built at a small price must be slighted. We have kept within bounds in saying that a fair pipe organ for church use, though small, and lacking the largest and most important pipes, and quite limited in capacity, cannot be afforded for less than fifteen hundred dollars.

Pipe organs are, therefore, out of the question for churches generally, and the want has been widely felt for a suitable instrument for this purpose; one which should be within the means of congregations generally, and yet of the best quality and sufficient capacity; occupying, at the same time, but little space. It is not too much to say that this want is fully met by the Mason & Hamlin Cabinet Organs, which entirely answers all these requirements. There can be no rivalry between these and pipe organs; for the field of one may be said to leave off where that of the other commences. While a fair pipe organ cannot be built for less than fifteen hundred dollars, the best reed organ that can be built need not cost, in a plain case, more than six hundred to one thousand dollars, and will be unquestionably better than any pipe organ which can be afforded for double the money—will equal or surpass it in power, quality of tone, variety and other good qualities, and have important advantages in other respects.

The Cabinet Organ keeps in good order, and does not even require tuning. The pipe organ requires constant tuning and attention. The cost of keeping a pipe organ in order will very frequently amount in a year or two to the whole cost of a good Cabinet Organ.

These remarks apply to all classes of pipe organs. Attempts to render pipe organs portable by bending the pipes and crowding them together in a small space must inevitably produce poor instruments. In order to secure portability, it is necessary to sacrifice almost every other good quality of a pipe organ.—N. Y. paper.

MINARGENT.—This substance, which is rapidly coming into use in the arts, consists of 100 parts by weight of copper, seventy of antimony and two of aluminium, of which the first three are melted together and granulated by pouring into water. The granules, after being dried, are again melted and the aluminium then added, with 1 1/2 per cent. of a flux, consisting of one part of borax and half a part of fluoride of calcium. This flux is to be introduced in smaller and smaller quantities successively, as the melting progresses. The principal difficulty in the process consists in bringing about the union of so large an amount of nickel into a homogeneous mass with the aluminium, for which it has but little affinity. Minargent does not quite equal silver in whiteness, malleability, resonance and specific gravity, but considerably exceeds it in durability, metallic lustre and maintenance of the white color.

ICE-MAKING.—There is in Paris a large establishment for the production of water bottles with a block of ice curiously crystallized inside. It consists of ten great underground ice vaults protected from the action of the sun by buildings covered with straw raised over them, and each of the ice vaults is nearly five hundred feet long and thirty-six feet high, the ten being capable of holding ten thousand tons of ice. The decanters are two-thirds filled with filtered water in the receptacles of the freezing machine, and the freezing is produced by means of salt water and vaporized ether. The water within the decanters is soon reduced below the freezing point, and it is then taken by a workman and its contents stirred with a stick, when it freezes almost instantly. More than six thousand of these frozen carafes are sent out daily in hot weather at a trifling cost, and each will serve to cool ten gallons of water.

MEASURING BOXES AND BARRELS.—A barrel contains 10,752 cubic inches. A box 24 inches long by 16 inches wide and 29 inches deep—that is on the inside—will hold just a barrel.

A half barrel—Make a box for this 24 inches by 16, and 14 inches deep. This will contain 5,376 cubic inches, or just half a barrel.

A bushel—This has 2,150 2-10 cubic inches. A bushel box will be 16 8-10 inches square and 8 inches deep.

A half bushel—a box 12 inches long by 11 2-10 wide and 8 inches deep will hold half a bushel.

A peck—A box 8 inches by 8 4-10 inches square and 8 inches deep is a peck.

A half peck is 8 by 8 inches square and 4 2-10 inches deep, or 268 5-10 cubic inches.

A half gallon—This contains 134 4-10 cubic inches. A box 7 by 4 inches and 4 8-10 inches deep has just that quantity.

A Quart—4 by 4 inches square and 4 2-10 inches deep.

The Superintendent of the Union Pacific Railroad has notified the Postmaster General that the road is now ready for conveying the mails as far as Evanston, which is nine hundred and fifty-seven miles west of Omaha. It is expected the road will be finished all the way to San Francisco by the first of June, as the track from that city is being pushed forward to the place at which it is to intersect with the Union line at the rate of nearly four miles a day. About three hundred miles of track only have now to be laid. The progress of this great undertaking is one of the marvels of the time, and may well elicit the wonder and admiration of mankind.—*Industrial American*.

MY WATCH.

A MODEL SABBATH SCHOOL ADDRESS.

Mr. T. P. Bishop contributes to the London Sunday School Teacher for October, a very spirited outline talk about his watch.

The other evening I was thinking what I would talk about to-day, and looked to see the time; my watch said half-past five. I knew it was nearly eight. I looked at its face—hands—listened—no ticking—examined works—watch had stopped—main-spring broken. I said I will tell the Sunday School children about my naughty watch.

Why are watches like boys and girls? They have faces—hands—anything else? I listen of a night and hear tick-tick; I come into school and hear a great clatter; children and watches have tongues also.

The face of my watch was wrong—not right time; but the fault of my watch was not in the face. There is a little spring shut up in a barrel right inside out of sight—the mainspring—sets all the works going—that was broken—that was wrong.

I saw a boy in the street with an angry face—eyes flashing; I said there is something wrong inside. When I look at a child's face I can often tell what is going on inside—girl pouting and cross in Sunday School—wrong inside.

When I looked at my watch I found the hands all wrong, not moving, and pointing to wrong figures. I put them in the right place, but that did not mend matters; something was wrong inside.

Girls idle—hands not moving—ought to be helping mother; boys in street fighting—hands all wrong; or fingers in the cupboard, picking and stealing and doing mischief—something wrong besides hands—mainspring wrong.

I listened to hear if my watch ticked; but no—it was silent. Watches and clocks can talk, and tell us many useful things in the stillness of the night; they remind us how time is going on—on toward eternity. Church clock instructs all the parish; Big Ben would talk to all London, if the noise would let us hear him. A good clock only speaks when it has something to say, and that something wise and useful. I wish girls and boys were as wise. But some clocks tell lies and talk nonsense. One I knew that struck nineteen at three o'clock, and at four o'clock it struck twenty-seven, and some are lazy and won't speak at all. But why? because their works are wrong.

Some children tell stories, or say naughty words, or won't say their lessons; is it only their tongues that are out of order? No, there's something wrong in the works—there's a mainspring broken. What do we call it?

When I found my watch stopped I first shook it, then put the hands right, tried to wind it, looked at the works, touched the wheels, got it to tick for a minute or two; but all was no good. I was not so stupid as to pull it to pieces and look at the main-spring. I knew it was broken, and the watch must have a new one.

Suppose I had taken the angry boy and the pouting girl, and tried to put their faces into a pretty shape. Suppose I had taken the lad that was fighting, and unclashed his fists and put his hands in the attitude of prayer; or the mischievous boy, and kept his hands still. Or suppose I could shut up the mouths that had words and lies come out of. Would that set them right? No; for in such cases it is all because the mainspring is wrong, and there must be a new one.

Of course I took my watch to the watchmaker, and he put in a new mainspring, and now it goes all right; face and hands are all right; it ticks all right. And so for naughty words and deeds, and evil habits and tempers, the only cure is the new heart, and for that you must go to the Great Watchmaker. Jesus says to you, "My son, give me thine heart;" and what does he want it for? Why, to give you a new one instead, and then hands, and face, and tongue will be all right.

But do all want the new heart? In a village in one of the western States lived little Annie

Gale. She was brought to know and love the Saviour. A friend said to her father, "I do not believe in your Annie being converted; she was like a little angel always. If old Dan Hunter, now, were converted, I would believe in it."—Annie heard it, and she went to Dan Hunter's cottage to tell him about Jesus. Dan had been a wicked man, and now he was taken ill, and he was glad to have Annie come and read to him; and Dan found that he could be saved in the same way as little Annie Gale, just by believing in Jesus, and praying for the new heart.

Children may seem good, bright, and happy children, and yet all want the new heart. I bought an apple once, and it was so large and round, and had such rosy cheeks, just like many a little boy and girl, and looked so good—and I expected such a treat—and so I cut it, and, O hear, I found that the inside was all rotten—just good for nothing. So, dear children, you may seem smiling and happy, and fair outside, but yet you all have a heart by nature just like that apple, and you must get a new one.

For the Christian Messenger.

IN MEMORIAM.

HANNAH CLEVELAND.

Died at Upper Londonderry, on the 23rd of December, after a protracted illness, Hannah Cleveland, the beloved wife of James W. Cleveland, in the 59th year of her age.

During her long sickness she was sustained by her Saviour, whose pardoning love she experienced many years ago.

The writer, a friend of the family, has often heard her express her trust in the merits of Jesus' death, and amid all her family troubles, and bereavements, and last sickness that trust remained unshaken.

Sister Cleveland enjoyed religion, and commended it to others, thus was her comfort in life and when she came to leave this world her testimony was "to die is gain."

Her ransomed spirit freed from the trammels of earth is now forever happy in the presence of him for whom she lived.

May her aged companion and children be sustained by grace divine and thus be prepared to meet her abode.—*Com. by W. W. R.*

Religious Intelligence.

THE GOSPEL IN SIAM.

LETTER FROM MISS A. F. DEAN.

Banplasoi, July 13, 1868.—In the new chapel here, I am enjoying the comfort of a plank floor, on which one may step firmly without fear of slipping through. The building measures thirty by thirty-three feet, all of wood, with an atap roof. Fronting the sea is an open verandah, where one finds the full benefit of the breeze, which is far more refreshing than the air of Bangkok just now. The verandah opens into the chapel-room, which occupies the larger half of the building, and would probably seat more than a hundred persons. Back of this are three rooms, used as sleeping and dining-rooms. The kitchen and bath-room are about to be. Chek Leng, one of the church-members close by, superintended the building; acting as nearly as he could in accordance with the suggestions of the "venerable teacher;" and he certainly deserves great credit for the strength and convenience of the structure. Like the other houses about, it is built on posts driven into the mud; but it is higher, and cooler, and cleaner than theirs; and although apparently on such a soft foundation, it stands well the strong winds to which it is subject.

A sail on the Gulf.—My father and myself left Bangkok in the family boat on Wednesday, July 8, at seven A. M., expecting to go a tedious journey through canals to this place. But the boatmen were averse to that; and, after repeated assurances from the steersman that the boat could cross the gulf without danger, they were allowed to take their own course.

We were at the mouth of the river at midday. After rowing for about three hours on the gulf, the wind would not allow us to go farther, so we tried to keep ahead of the waves, in shallow water, and close to the shore. The rising tide carried us higher and higher up the sloping coast, until I, for one, began to be afraid that she would be rude with us and get us into deep water. But no, she only took us up among the bushes, and there quietly receded; so quietly were we then studied from the waves that all went to sleep and the tide stole away, leaving us fast in the mud, and we awoke just in time to see the waters at the stern laughing at our calamity. There we had to stay a night and a day, waiting for the tide to come and rescue us. In this case she proved more powerful than ten men, and we went on our way rejoicing.

A kind Providence.—There was a kind providence in this detention, however, as we learned afterward, to preserve us from the boisterous sea. On Friday, at sunset, we landed. Scarcely were we out of the boat, our goods and chattels not yet all in the chapel, before there came a fresh breeze, which must certainly upset our little boat had she been on the waves. As it was, it nearly blew me off the narrow raised walk leading to the chapel, and father had to hold on to the strong arm of Chek Leng to keep his balance. After we were safely housed, the wind and rain came in great fury; only showing another wonderful deliverance from the power of the elements, and giving evidence again that we were in the safe keeping of Him who commands the winds and the waves. As the friends who called next day heard the incidents of our trip,

they all said, "The God of Heaven has preserved you."

Each caller came with a gift, as the custom is; some brought rain-water, which they know we prize; others fowls, fish, and eggs, pomegranates and custard apples, more than enough for us and the boatmen. Last of all, the assistant brought in a miniature sea-horse. Although dead, he had once been alive, and was found by men who went out for mussels. This we could hardly number with the articles of food, although a Frenchman might have done so.

Dedication, Ordination, and Election of Deacons.—On Sabbath was the dedicatory service, at which were present something over forty. Afterwards seven candidates were examined for baptism; that ordinance was deferred until next Sunday, when there would be high water.

July 20.—Yesterday we passed another interesting Sabbath with the friends at Banplasoi. Before the morning service was over, nearly sixty were present. As in country churches at home,—not so in the city, of course,—some were not in to hear the text, which was in 1 Cor. v. 12. After the sermon, Chek Pua, the assistant, who has been laboring among them for two or three months, was unanimously elected their pastor, and was ordained. Being the first one set apart among the Chinese here as a minister of the gospel, he hesitated long about accepting the office. He was baptized by Mr. Ashmore, and for several years has been an assistant preacher. Although he has been through no theological seminary, he seems to have a good knowledge of Scripture, and is gifted in explaining and applying it. Two members who have been longest in the church were appointed deacons.

Baptism of nine Candidates.—In the evening, when the tide was high and favorable for baptism, the church came together again, and two more candidates offered themselves for the ordinance, and after examination, were accepted. After a few minutes' walk we found a sandy beach, whence we saw the nine baptized in the sea. At the communion which followed, there were present twenty-five out of the thirty-four members, and among them three women, all of them wives of church-members. One especially interested me, so earnest does she appear to be after the truth; her husband, too, manifests a beautiful spirit, and together they seem honestly striving to follow their Master.

In the midst of this rejoicing, the church was reminded that her pleasure was not yet unalloyed; for three of the members were mentioned as subjects for discipline.

Pray for this little church, now independent, but scarcely able to stand alone, that God may ratify in heaven what has been done for it on earth; that He may establish, strengthen, and purify it, and make it a light in the surrounding darkness.—*Missionary Magazine*.

A FRENCH ROMANIST'S TESTIMONY.—Count Montalembert says: "These Missionaries are of all sorts—Methodists, Baptists, Independents, etc.—and my faith obliges me to regard them as heretics, as strangers to or rebels against the truth which I profess; but it does not make me blind to the immense service which they have rendered to humanity and to freedom. I feel pleasure, on the contrary, in declaring the labors of the English missionaries in the West Indies, one of the noblest spectacles ever exhibited to mankind. The influence of these missionaries have been spoken of as a reproach to them. Gentlemen, what was the origin and nature of that influence? They reigned over the negroes, it is said. I admit it readily? but by what better title is it possible to reign over men? Why, they found these poor blacks, men and women, naked, and taught them to clothe themselves; they found them living together like brutes, and united them in marriage; they found them in ignorance, and introduced them to knowledge; they found them in barbarous superstition, and threw on them the light of the Gospel; in a word, they found them in slavery, and conducted them to freedom. And after this they are reproached with the influence which they exercised. It is the most legitimate and felicitous influence which can be exercised by man over man."

MADAGASCAR.—"Scarcely seven years have elapsed since to be known as a Christian in Madagascar was to expose oneself to imprisonment, exile and death. Now there are a hundred chapels built up by the people themselves, nine churches, and over five thousand church members." According to the latest intelligence, "the new Queen and the Government have publicly renounced idolatry. The Queen sends her household to attend the ministry of one of the Protestant missionaries, and the eldest son of the Prime Minister is a candidate for church-fellowship. In many places the church edifices are not spacious enough to hold the crowds eager to hear the preaching of the Gospel. There is now reason to hope that the whole of the important island of Madagascar, which has a population of five millions, will be soon won over to Christianity."

It is said that a delightful work of grace has been progressing for some time among the Indians in British Columbia. A man sixty-five years of age, one of the converts, said, "I feel like an infant; not able to say much; but I know that my heart is turned to God, and that He has given His Son to wash away my sins in His own blood."

A church in San Francisco, California, organized nineteen years since, and numbering 463 members, besides meeting the demands of liberality in other directions and liquidating generously its own expenses, sustains two missionaries in the Micronesian Islands.