

### How Music Saves Life.

It is a fact which needs now but the briefest mention, that, in the cases of the unfortunate *Schiller* and the *Atlantic*, any sound that could have pierced the fog and warned the captains of those ill-fated boats that they were nearing a rock-bound shore, would have saved hundreds of human lives. It is such a sound as this which, where lighthouses are useless amid dense fogs, shall override the thunder of the waves and the howl of the tempest, and carry its warning far out to sea, that governments have been seeking for this many a year. We propose briefly to tell how, through the progress of the science of music, they have found that which was so sorely needed.

It is hardly necessary to dwell upon the fact that the penetrative power of a sound bears a very close relation to its shrillness—that is to say, to the height of its pitch. Every Alpine traveller knows that the high *falsetto* of the *jodel*, or rather squeaky soprano of the Swiss girl, may be heard over mighty chasms that the great lungs of the baritone are unable to send a sound across. But what every traveler does not know is this, that sound is caused by the vibrations of a body, and carried by corresponding vibrations of the atmosphere; and that the sound's shrillness, intensity, *pitch*, is directly proportioned to the number of aerial vibrations executed in a given time. For instance, the lowest sound known to music—so low, indeed, that it is questionable whether it be a musical sound at all—is the lowest note on the largest modern organs, and which is caused by aerial vibrations of sixteen and one-half to the second. We get, in fact, no satisfactory musical sound until we reach the lowest note of the double-bass, which vibrates forty-one and a half times per second. On the other hand, that of height, there is absolutely no limit except one of pain to the ear. The highest note of any known soprano produces about 1,500 vibrations per second. The piccolo, the shrillest sound considered attainable in pleasure-giving music, reaches a pitch whose vibration number is 4,752 to the second.

In this study of the physics of music, it speedily became very desirable to measure, with absolute accuracy, the number of vibrations represented by any given sound. For that purpose a wonderful little instrument was invented, called the "sirene." Conceive a thin circular disc of tin, revolving perpendicularly on an axis, and with eight equi-distant holes near its periphery. The disc is made to revolve at any desired speed by means of clock-work, which also registers the number of revolutions per second. The end of a small tube comes close to one of the holes, and, of course, on a line with all of them, and through this a steady current of air is forced. As the wheel turns round the air passes through each hole as it passes the tube, creating a throb, a vibration. As the rapidity of the wheel increases a musical sound is created, which rises continuously in pitch, its vibration number being just equal to the number of holes that pass the tube in a second. To determine the vibration number of an instrumental note, therefore, you have only to increase the rapidity of the sirene until the pitch of the two is equal; then note the registered number of revolutions per second, and multiply it by 8, the number of holes. For an example, the sound of the middle C of the piano forte makes 264 aerial vibrations to the second.

Such is the "sirene," and, after studying it, an American inventor jumped of a sudden to the discovery of that grand life-saving invention, the "Fog-Siren." He saw that, with this machine, there was absolutely no limit to the increase of pitch, and, therefore, of intensity, save in the fluidity of the particles of air, and the requirements of volume. It is unnecessary to follow the steps of his progress. Sufficient to say that his perfected machine has been tested by the leading scientists of both continents, and is rapidly being put up in such places as those where the *Schiller* and the *Atlantic* went to their ruin. Its mechanism may be briefly described: There are two discs close together, with twelve holes in each, the holes of course corresponding exactly in position. One disc is fixed in the end of a conducting trumpet twenty feet long, which is pointed, by machinery, toward

that portion of the sea where the sound is to be sent. The second disc is kept revolving, at the rate of 2,800 times a second, highly compressed air being forced through the holes at the same time. As there are twelve holes the 2,800 revolutions raise the total vibrations per second to the enormous number of 33,600, and this makes a demoniac shriek that is not much like the voice of the sirens who sang to Ulysses, but which can be heard from three to sixteen miles at sea, and so music contributes to the saving of life. — *Cincinnati Times*.

### THE TERRITORIAL JUDGES AND WATER RIGHTS.

A recent decision of the Supreme Court of the United States in the case of *Basey vs Gallagher*, taken up from the Montana courts, has given a definite status to water rights—a question of paramount importance to miners and ranchmen west of the Missouri river. In the decision of this case two exhaustive opinions delivered by Judges Wade and Knowles in the prior case of *Thurp vs. Freed* (the bench at that time consisting of these two Judges who did not concur) were read and the opinion delivered by Judge Knowles was approved by the Supreme Court. While we are pleased to see the question finally determined, and to see the opinion of the Judge of this District adopted in so important a decision, it is also with regret that we see the *Montanian* distort the matter and warp it into a pretext to censure Judge Wade. As we are advised this censure is unwarranted. The question whether water could be appropriated for the purposes of irrigation since the Act of Congress approved July 26, 1866, entitled "an Act granting the right of way to ditch and canal owners over the public lands and for other purposes," has been a debatable one. Probably there were not two lawyers in the Territory who felt well satisfied of this fact when the question first came up in the courts. There were no decisions of any courts in the United States directly upon the point, and there was plenty of room for difference of opinion. The lawyers who appealed the case to the Supreme Court certainly believed the question an open one. Our information is that Judge Knowles held that the Act of Congress above referred to, *did* apply; that the right to appropriate water for irrigation was recognized by the customs, the laws and decisions of the courts of the Territory; that although there was no decision directly upon this subject yet the decisions which recognized the right to appropriate water for mining and milling purposes established the principle that water could be appropriated for any beneficial purpose, and that the purposes of agriculture being certainly beneficial the principle applied to water diverted for that purpose. Judge Wade recognized as fully as did Judge Knowles the beneficial purposes of agriculture and the necessity of the use of water for irrigation purposes, but held that the custom to so use was not definite enough, that no evidence of the custom had been presented to the court, that the decisions of this Territory and California went only to the point that water could be used for mining and milling purposes, and this in the mining regions only, where there was no government title to the land and could be none, and hence that the Act of Congress did not apply. He held, however, that the Common Law, which prohibited persons from diverting water for irrigation, was not applicable in this country, that that rule of common law was instituted in England where the atmosphere is humid and rains frequent, that the cultivation of the soil in civilized communities is a necessity to existence, that with us irrigation is necessary for the cultivation of the soil, that the common law recognizes the right of the uses of life—i.e., for domestic purposes and quenching thirst—that in this country it is as necessary we should have water for irrigation as for drink and domestic purposes, that the common law has the capability of expansion and in this case should be so expanded as to allow the use of water for irrigation. So the two judges arrived at practically the same conclusion on this point, although holding dissenting views as to the application of the act of Congress. Judge Wade, however, denied that he who first used the wa-

ters of a running stream for irrigation had the prior equity. In effect his opinion was that it would be just as reasonable for him who had first quenched his thirst at a running stream to say to every other person who desires water, "You have no right to drink of these waters until I am satisfied," as for one who first used the water of a running stream for irrigation to say to all others who drink water, "Wait until my ground is wet enough before you can take a drop,"—in effect that the use of water for irrigation and quenching thirst must be recognized as equal necessities. There is a large measure of humanity and fairness in this view. The point Judge Wade overlooked was that when the supply is inadequate to the necessities of all, some method of preference must be established, and experience has demonstrated priority of title is the better method. Judge Wade moreover recognized, in the very case in which the Supreme Court rendered its decision, the right of water by the prior appropriation on *unsurveyed* land. While therefore we believe the position taken by Judge Knowles to be the best for the country, and its acceptance by the Supreme Court as a sound opinion and a precedent henceforth highly creditable to him, it will be seen that Judge Wade in the one instance arrived at the same conclusion and in the other held a theoretical opinion that has a strong element of righteousness and which it is a pity the running streams do not permit carrying into practical effect. This statement of the opinions held is we believe correct, and if so it will be seen how small a thread of moonshine will set some newspaper kenne's furious with censorious and discordant bayings. Judges are not infallible, even those of the Supreme Bench of the United States, cultured by long years of study and ripened by life experiences. It is not therefore passing strange that a Montana Judge should hold opinion on some point of an intricate and unsettled question that the Supreme Court after years of consideration should not sustain. It is somewhat strange though that the reporter of the Montana Supreme Court, holding his lucrative position by the friendly act and forbearance of that Judge, should, if he has any sense of his position, be the first and only one, and that without cause and by distortion and detraction, to censure and condemn. He appears to think, however, he has a duty to do in attacking the Montana Judiciary; so evidently thought the bull that butted the locomotive. But he didn't think so long nor with satisfaction. — *New North-West*.

### The Growth of London.

The *Leisure Hour*, in speaking of the growth of London, says: "The metropolis of the British Empire, the largest city the world ever saw, covers within fifteen miles' radius of Charing Cross, nearly 700 square miles, and numbers within these boundaries 4,000,000 inhabitants. It contains more Jews than the whole of Palestine, more Roman Catholics than Rome itself, more Irish than Dublin, more Scotchmen than Edinburgh. The port of London has every day on its waters 1,000 ships and 9,000 sailors. Upwards of 120 persons are added to the population daily, or 40,000 yearly, a birth taking place every five minutes, and a death every eight minutes. On an average, twenty-eight miles of streets are opened, and 9,000 new houses built every year. In its postal districts there is a yearly delivery of 238,000,000 letters. On the Police Register there are the names of 120,000 habitual criminals, increasing by many thousands every year. More than one-third of all the crime of the country is committed in London, or at least brought to light there. There are as many beer-shops and gin-palaces as would, if their fronts were placed side by side, reach from Charing Cross to Portsmouth, a distance of seventy-three miles, and 38,000 drunkards are annually brought before its magistrates. The shops open on Sundays would form streets sixty miles long. It is estimated that there are above a million of the people who are practically heathen, wholly neglecting the ordinances of religion. At least 900 additional churches and chapels would be required for the wants of the people."

The European Mission.—The following are from the *Millennial Star*, June 14—

"Bristol, June 6.—I have enjoyed myself greatly in my visits to Nottingham, Wales and London Conferences. On leaving London I went to Southampton where I remained over night at sister Randall's. All the family were well.

"Leaving Southampton I went to Swanage, where I delivered two out-door lectures on Sunday, May 23rd, there being from 100 to 150 persons present, most of whom paid excellent attention. Mr. and Mrs. Tippet received me very kindly and assisted all they could in making arrangements for our meetings.

"Leaving Swanage on Monday, 24th, I proceeded to Blandford, and held meeting Tuesday evening, May 25th, at brother E. Oliver's. From this point I wended my steps to brother Hunt's, Stoford-five-Acres, near Yeovil, where I also held a meeting, May 27th, there being several strangers present, all of whom paid very good attention. While here I baptized brother Hunt's son, Alma James.

"I now traveled to Broadwindsor, and on Sunday, May 30th, in company with Elders J. Whendon, G. Ostler and others of the brethren and sisters went to Winsham, a small village about five miles distance from Broadwindsor; the local brethren having been there recently and preached twice, leaving an appointment for that day. A gentleman gave us an invitation to come on to his premises to preach; about 400 people assembled to hear us. Elder Ostler read from Matthew, seventh chapter, commencing at the 13th verse, after which Elder Whendon addressed the congregation. I followed for about one hour, discoursing on faith, repentance and baptism for the remission of sins, to which the majority of the people paid very good attention. We returned to Broadwindsor and held a good meeting in the evening.

"At Eastdown, Devon, Elder Wm. Lerwil and family are rejoicing in the truth. I have baptized his daughter, Mary Priscilla; several people are very favorable to the work in that vicinity.

"Wherever I travel I find that the spirit of inquiry after the Gospel seems to be on the increase."

"B. H. WATTS."

"London, June 8.—I returned late on Saturday evening from a visit to the Saints on the Isle of Jersey—there are some good people there, but they much need the labors of a good faithful Elder among them. They are so far away from "head quarters" that they seldom enjoy the privilege of a visit from an Elder that has come from Zion. A new generation has grown up since there was much if any preaching on the Island by the Latter-day Saints.

"We had an excellent time here on Sunday last. Priesthood meeting at 10.30 a. m., at Pentonville, which was quite generally attended by the brethren. At 2 p. m. I baptized five persons, (some of them re-baptisms) and at 6 p. m. the meeting rooms, especially of White-chapel and North London Branches were better filled than we have ever seen them before; the Saints truly had a time of rejoicing.

"We intend to hold a District Meeting on Sunday next at the Eastern Hall—a large hall on the East India Dock Road—in which some five or six of the branches in London will unite.

"Elders Binder and Fowler are both in excellent health and spirits, and are enjoying fully the spirit of their mission."

"R. T. BURTON."

"Leicester, June 8.—I have been visiting every day amongst my kindred and friends, and not a day has passed but few or many have been seeking me, persons having friends or relatives in Utah, to enquire after them. I often smile at the various questions asked about the many false statements that have been put in circulation by our enemies and apostates respecting Prest. Young and the Mormons at Salt Lake; but I am satisfied that all have gone away feeling better than they came.

"For some time past the faithful Saints in Leicester have been meeting in a private house to receive the Sacrament of the Lord's Supper. Now they have just taken a comfortable room, in a respectable neighborhood, in which to meet for public worship. It was opened on last Sunday. We had a very respectable congregation at the evening service."

"JAMES MELLOR, SEN."

CALIFORNIA FRUITS.—It is easier to live in San Francisco than in any city on the continent. The supply of fruits and vegetables is beyond demand and such fruits! They have strawberries from March to November, and such strawberries the undersigned never saw. Great luscious berries, as big as hickory nuts, and with a flavor that I never saw in the East. So far, I am not prepared to take up the cry that California fruits have no flavor, which is so common in the East. All that I have eaten were even richer than the best I ever tasted east of the mountains. But I have not tried them all yet. Green peas, asparagus, new potatoes, turnips and all that kind of truck, are always in season. The markets present a beautiful appearance, for there you shall see everything the appetite craves for, and all of the best. We are eating cherries now of all kinds, and oranges are selling in the orchards south of San Francisco at fifty cents a bushel. [The writer is a little low in the price of oranges.—Editor *Transcript*.] Think of that! And they have a variety. The vegetables of China, Japan, and the islands of the sea grow here better even than they do on their native soil. So these favored people gratify their tastes with the delicacies of two continents. San Francisco feeds well.—*Cor. Rutland, Vt., Herald*.

BANANAS IN SANTA BARBARA, CAL.—N. W. Winton, real estate agent of this city, has received from a gentleman residing in Florida an order for the purchase of a tract of land suitable for the production of bananas. The soil required should be stony, rich and moist, and the party is confident that the variety which is successfully raised in Florida north of 28 degrees north latitude, to wit: the *Musa paradisiaca cavendishii*, can be profitably raised here. This variety, he states, has become acclimated and will stand a great deal of cold. A writer upon the fruits of Florida says: "When it is realized that a plantation of bananas once established has never to be renewed, and that one acre of the fruit will produce as much food as 130 acres of wheat or 45 acres of potatoes, its value and importance will be readily acknowledged." The gentleman desiring to purchase visited Santa Barbara some two years ago, and writes that he considers the climate of Santa Barbara superior to that of Palatka, Florida, where he is now residing, for the growing of tropical fruits and for its mildness and equability. He further says that the mercury there often goes as low as 25 degrees above zero. Frost is not a very uncommon thing in Florida. In 1851 a large portion of the orange trees at Mandarin and other points on the St. John's were killed down to the roots by frost.—*Santa Barbara Press*, June 17.

THE FIG CURE FOR CANCER.—Boil new fine figs in new milk, which they will thicken; when they are tender, split and apply them as warm as can be borne to the part affected, whether broken or not. The part must be washed every time the poultice is changed, with some of the milk. Use a fresh poultice night and morning, and at least once during the day, and drink a quart of a pint of the milk the figs are boiled in twice in the twenty-four hours. If the stomach will bear it this must be persevered in for three or four months at least. The first application gives a great deal of pain, but afterward each dressing gives relief. A woman cured by this remedy had been afflicted ten years; her breast bled excessively; ten pounds cured her.

A national training school of music is about to be established in London, and the Prince of Wales, as president of the Society of Arts, has addressed a letter to the Lord Mayor of London, inviting him to a conference at Marlborough House for the purpose of establishing free scholarships in connection with it.

Mrs. Dr. Eagle and J. H. Baskin, Indian interpreter at the Santee agency, eloped and passed through Sioux City, Sunday. She deserted her husband and child to unite her fortunes with a man infinitely her inferior in every respect. No cause is known. Dr. Eagle and wife had always been held in high esteem in the Territory.—*Omaha Herald*, June 26.