The Early History of the Organ

Author(s): J. F. Rowbotham

Source: *The Musical Times and Singing Class Circular*, Vol. 29, No. 548 (Oct. 1, 1888), pp. 585-589

Published by: [Musical Times Publications Ltd.](#)

Stable URL: <http://www.jstor.org/stable/3360121>

Accessed: 23-12-2015 01:26 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Musical Times Publications Ltd. is collaborating with JSTOR to digitize, preserve and extend access to *The Musical Times and Singing Class Circular*.

<http://www.jstor.org>

THE MUSICAL TIMES

AND SINGING-CLASS CIRCULAR.

OCTOBER 1, 1888.

THE EARLY HISTORY OF THE ORGAN.

By J. F. ROWBOTHAM.

To trace the organ back to the bagpipe would seem to be the very ultimate point which investigation could reach, and having carried the great instrument to so simple and homely a progenitor, further prosecution of its ancestry would be needless, since it had by then passed into another form and was merged in a humbler and minor member of the musical family. This is the method of treatment which has been employed in the principal works on the organ and its history, and would be unassailable in point of judgment and rationality were it not for the fact that the organ did not begin as a pure wind instrument at all, but had its source in quite a different quarter and from other suggestions entirely.

Up till even a late time in the Middle Ages we find two rival races of organs contending for public favour, in much the same way that steam power and manual labour contend to-day, without any obvious preference for one form over the other—these were wind-organs and water-organs. And water-organs were by so far the more ancient and long-standing of the two that half their life and growth was over before wind-organs had emerged into a separate existence from the bag-pipe's reeds and blow-bag.

Water-organs, therefore, were the form in which the instrument first saw the light; and the original idea of the water-organ was due to the ingenuity of a Greek barber, some two or three centuries before Christ. His name was Ctesibius, and he lived at Alexandria, at that time a Greek town as essentially and completely as Athens itself. He had invented the clepsydra or water-clock, which was a clock to tell the time of day, that went by water. The water was made to drop upon little wheels, and so turned them round. The motion of these wheels was communicated to a statue, which gradually rose as they went round, and pointed with a stick that it held in its hand to the hours marked on a pillar. But this clock, which answered admirably in the daytime, was plainly of no use at night, when it was dark and the hours marked on the pillar could no longer be seen. To obviate this deficiency, Ctesibius after a time invented a most successful remedy. Instead of a stick in the hands of the little statue, he placed a mimic flute to its lips; and so directed the dripping water that it should force air through the flute at the necessary times, whereby the hours were now sounded on the flute and could be heard at night-time, and the time thus known as distinctly as if the statue were pointing with its stick to the dial-plate by day.

This invention gave Ctesibius the first idea of the organ. Observing how melodious was the sound which the one flute made, he conceived the notion of multiplying the flutes and constructing thereby a strange and new musical instrument, bidding adieu to the clock and its requirements in consequence. Accordingly he devised an extraordinary novelty known as the *Hydraulis* or *Water-flute*, which consisted of a box containing numerous flutes and a large vase of water beneath it. The ends of the flutes were turned downwards towards the water, descending to within half-an-inch from the surface; and the water being set in oscillation by a wheel or paddle forced volumes of air through the flutes, and produced a wild and dulcet melody.

This invention, the *hydraulis*, became the rage of Alexandria and of Greece. No supper party was considered complete without it; no social gathering was deemed sufficiently provided with amusement unless the *hydraulis* was there to delight the ears of those present with its sweet warbling. Slaves received special lessons so as to wave the water steadily, and large sums were paid to experts who were supposed to possess the secret of the perfect motion of the fluid. Yet at the best this *hydraulis* or *water-flute* can have produced nothing more definite or distinct in the way of musical melody than an *Æolian* harp does when agitated by the wind. Indeed, the sound of both instruments must have been analogous. Unordered, unregulated, though no doubt sweet and dulcet euphony, must have been the characteristic of the Greek instrument as of its modern counterpart. Yet it became the fashion of the day; but was still far off from being that staid and methodical work of mechanism known as an organ.

Royal patronage was necessary to foster the idea of the solitary inventor; and it is a matter of unbounded surprise to find that the tyrant of the world was the chief patron and improver of the organ. Nero, despite his fiendish cruelty and appalling vices, was an excellent musician. He was one of the finest singers of his day; he was a profound theorist; he was a skilful player on almost every known instrument. And the *water-flute* or *hydraulis*, having lasted till his time in the chaotic condition we have described, was indebted for its first great step towards becoming an organ to his ingenuity and musical sensibility. Nero suggested the addition of slides at the bottom of the flutes, to be opened and shut at pleasure, whereby any flute could be made to speak and any compelled to silence; and by this means the sound of the instrument passed at one great bound from vague and chaotic murmur to regulated and disciplined notes—with unknown possibilities underlying the change.

To the slides were attached strings or levers, for the purpose of opening and closing them. And these latter were ultimately attached to iron keys, which the fingers might press, and by means of the mechanism open and shut the slides at pleasure.

Nero's main reason for his interest in the organ was that he might add a new instrument to the orchestras of the pantomimes, which answered in ancient Rome very much to what operas or melodramas do with us. To enhance the musical effect of these was his constant and unwearied object; and besides his improvements in the organ he is credited with the introduction of several new instruments to the theatre bands, such as the foot-castanets, the great lyres, and the silver gongs, which were made in the shape of vinegar jars. After much busy attention to the mechanism of the organ, he came to the conclusion that in its present state the tone was too soft and weak to be of any use beyond that of accompanying the voice; and, indeed, he sang to it most sweetly himself, and professed himself much pleased with the way in which it blended with the inflexions and intonations of his utterance. The problem, therefore, which he set his artificers was to strengthen the tone of the organ by whatever means their ingenuity could suggest, so that it might take its place in a full band along with the other instruments, without the risk of being overpowered as heretofore.

Nero's zeal and assiduity for the improvement of the organ was unfortunately cut short prematurely. The very next morning after his last day of careful and indefatigable attention to the requirements of the instrument, and the issuing of his orders for the

desired amelioration of its construction, Rome was entered by his enemies, and he himself, within a few hours afterwards, had fallen victim to a cruel and untimely death by his own hand. It is not a little curious that the last recorded act of this tyrant on earth, before his death and overthrow, should neither be a political measure, nor a monstrous crime, nor an unheard-of vice, but a simple and single-minded effort for the advancement of music. We learn that he spent the day before his death "walking about among scores of organs, all made agreeably to his directions, testing, trying, and amending them, and by all means endeavouring to secure their perfection."

The improvements promised so rapidly in the construction of the organ by the patronage of Nero were unfortunately and necessarily postponed by the political events which followed. His artificers, however, and those who interested themselves subsequently in the same undertaking, carried out successfully the project of strengthening the sound by the introduction of a species of pumps, playing through the water, whereby a strong and steady current of air was supplied to the pipes. And when we next hear of the water-organ, after it had received the benefit of these and further improvements, the form it had taken, and in which indeed it remained under the later emperors, was as follows: There was first a large vase half full of water, which had an inverted funnel in it that was connected by a pipe with a flat box or wind-chest above. On each side of this vase were cylinders with pistons inside them, which were worked with levers from below, like pumps. These cylinders had pipes running from them into the central vase down through the water into the bell of the funnel. And there were valves at the top, hanging by movable chains. When, therefore, it was necessary to fill these cylinders with air, the lever was raised, the valve immediately descended, and through the hole the air rushed into the cylinder. But directly the lever was pumped downwards, and the air sent rushing up the cylinder by the piston, at the first puff the valve closed at the top, and the air therefore rushed through the pipe into the central vase, and down it into the bell of the funnel, for the pipe reached there. From thence, with redoubled force, owing to the weight of the funnel and the pressure of the water, it was driven up the funnel's pipe and into the wind-chest. In this the pipes were set, and their bottoms covered with slides, as we before described, which were connected with iron keys by strings or trackers. The touching of the keys caused the sound to come, "and, according as it was played, there was a varied and beautiful melody."

This was the form which the organ retained during the whole remaining centuries of the Roman Empire. So popular did the instrument gradually become, after these various improvements had developed it into a harmonious and musical utter of sound, that among the Roman nobility in the reign of Honorius, and, indeed, long before his time, the organ became as popular and as common an inmate of every house as the pianoforte to-day is with us. The vases which held the water were made of the most precious alabaster or marble. The cylinders where the pistons worked were wrought in gold and silver, and studded with glittering gems. The water itself was scented and perfumed with rare odours, and the fragrance of sweet smells was added to the melodious euphony which passed through the pipes. The slaves who elevated and depressed the pistons were dressed in elegant and appropriate attire, and the organist himself in robes of ceremony which rivalled in their gay magnificence the costumes of the princes who attended the performance of the music.

For the purpose of being transported from house to

house, as we carry harps and violoncellos, the organs were sometimes made portable. And then the vase was constructed of lighter materials, of light plaster, for instance, or even of gilded tin, and gangs of slaves were employed in carrying the delicate and fragile mechanism through the streets.

At Constantinople, the seat of the Eastern Roman Empire, the instrument was held in no less honour than in the West. The great water-organ was a constant figure in the pageants of the circus, and in all state ceremonies was an indispensable addition, as at those ceremonies in the Golden Hippodrome, when to the full and sonorous pealing of the organ the emperor rose from his throne to bless the assembled people.

The barbarism and ignorance which overspread Italy and Europe on the irruption of the Gothic invaders were plainly no atmosphere for the progress of the mechanical arts; and for some centuries to come, after the reign of Honorius, we hear nothing whatever about the organ. Its very existence is a matter of doubt, and the knowledge of its construction was probably lost along with the other arts which perished in multitudes amid the darkness which covered the face of the land. At any rate, when next we obtain tidings of it, about four hundred years later on, it appears as an unknown thing, a strange mysterious marvel for men to wonder at; and has to be re-introduced into benighted Europe from abroad, from the home of civilisation where the light of art still lingered on, undimmed by barbarian darkness—Constantinople.

It was in the reign of Charlemagne, when Europe was beginning to recover from the effects of the long night of barbarism, that ambassadors came from the Emperor of Constantinople to Aix-la-Chapelle to treat of some political alliance between Charlemagne and their master. They had not been long there when stories began to spread about the court of a mysterious musical instrument they had brought with them, made of brazen cylinders, and bull's hide bellows, and pipes which could roar as loud as thunder and yet could babble as soft as a lyre or tinkling bell. This plainly is an organ; and what is more it is an organ *with stops*. In order to gain the knowledge of the construction of the magical wonder, Charlemagne sent artisans into the ambassadors' apartments, bidding them pretend to employ themselves on some other labour, but all the time to examine the structure of the instrument, so as to be able to make another like it. The workmen were successful in their observations, and constructed an organ on precisely similar principles, which was placed in the Cathedral of Aix-la-Chapelle, and was, according to an old and reliable tradition, the first organ ever made in France.

Comparing this organ with the water-organ of Nero and his successors, we shall find that two great and striking improvements have been introduced during the life of the instrument at Constantinople, and in the interim of its exile from Europe for four hundred years among the Byzantine Greeks of the Eastern Empire. First, stops have been invented; and, secondly, bellows have been added to the water mechanism. From the existence of stops we must argue that one or other of the following changes have come about in the construction of the instrument:—In our account of Nero's organ, if we were right in assuming that the keys acted by means of cross-slides—that is to say, by the same mechanism which we employ for our stops to-day—then we must argue that the mechanism of pull-downs, pallets, and grooves, or an equivalent for these, had meantime been invented for the keys, and the slides appropriated for stops, as we use them at present. Or if, on the other hand, we prefer to credit Nero's organ with a similar key-action to our own, then we must admit

that the slides had been the new invention. In any case, we must grant that stops had been added to the organ. And this is the first great difference between the organ of Charlemagne and the organ of ancient Rome.

The second is the addition of "bellows made of bull's hide" to the mechanism, and, at first sight, this statement would seem to imply that the days of the wind-organ had already begun, and that Charlemagne's organ was simply an instrument of that nature. But a further inspection will at once silence this conjecture. For among the other things which the workmen were told specially to observe were "two brazen cylinders," that formed an essential part in the structure of the organ. Now what purpose could two brazen cylinders answer in a wind-organ? None at all. But in a water-organ they forced the air by means of pipes through the water into the air-condenser, from which it was conveyed into the wind-chest, and are indeed the identical barrels or vases of Nero's instrument. The new invention was the substitution of bellows for the pistons and levers, which pumped the wind up the vases. In the primitive water-organ, if we remember, the wind was pumped up the vases by means of pistons, which fitted into them, and were worked by levers underneath. But in this later and improved form bellows were used in place of the pistons and levers, and blew the wind into the cylinders. Thereby, of course, the necessity of a valve at the top of the cylinders was done away with.

Whence, then, came the knowledge of bellows, and their application to organ-blowing? This application, which seems so natural a one, was curiously late in being thought of. Three hundred years had passed away since the time of Nero, and the water-organ, with its steady service of levers and pistons, was in the full tide of its popularity, when we hear of an experiment made by a stray inventor to blow an organ by means of bellows. The idea was thought so odd that it excited general ridicule. Conundrums were made about it; jokes were cracked on it. One solitary engraving of the curiosity has come down to us; and then it passed into the limbo of other oddities, and can scarcely be said to have suffered neglect—because it never commanded attention. Indeed, there is little wonder that the musical Romans should have put aside the bellows-organ as a worthless and impracticable idea; for in thinking of the bellows employed we must imagine the identical bellows, and no other, which are used at our own firesides to-day, so that we can well conceive the terrible insufficiency of power in such bellows compared with that of hydraulic pressure—and the unswerving allegiance to the latter becomes plain enough. Also let us reflect on the irritating unsteadiness of blowing, which bellows of so primitive a form can never be free of, and which was so admirably obviated by the contrivance of pistons and levers passing a continuous current of air through water. No wonder, then, that the bellows-organ was tacitly set aside as a useless oddity, and that the water-organ continued to rise in popularity as the only representative of the organ known. Yet in the quiet interim of four centuries at Constantinople the idea of the bellows must have again attracted attention, and this time more than a passing one. And in the course of this long period, doubtless after many experiments and failures, a compromise had been effected between the two forms whereby the bellows were added in a subordinate capacity to the water-organ, to blow the wind into the cylinders instead of the pistons and levers heretofore employed.

Next as to the number of pipes which these ancient organs contained, and the number of keys on the

keyboard. The accounts of the Latin and Greek writers, from which we have gathered much of the above narrative, though sufficiently full and satisfactory on the other points that we have discussed, are provokingly reticent on this final question which enables us to complete our conception of the ancient organ. Yet we are not entirely devoid of information on the subject, and the intelligence has come to us by one of those freaks of history which occasionally throw light on strange matters from unexpected quarters, where other and sedater informants have made an oversight. When deliberate indoctrination fails, accident steps in to supply the deficiency. The organs of Constantinople have their exact number of pipes revealed to us by one of these *bizareries*, and in the following way: Optatian, a court poet of the time, wrote a poem on the organ to please the then emperor of Constantinople, who was a great lover of the instrument. Without saying a word in his poem beyond the merest platitudes about harmony, heavenly symphony, and so on, Optatian has yet contrived, by an absurd conceit, to furnish more valuable information in a short compass than all the theorists and musical writers of his day convey. He has so arranged his verse that it shall represent the actual appearance of an organ itself. His poem bears an analogy to those bright masterpieces of wit, better known to last century than to this, which arranged drinking-songs in the form of wine-glasses, and love sonnets with the type so disposed as to imitate a heart, and so on. Similarly the poem of Optatian is written in the form of an organ. The first verse is of so many letters, the second of one letter more than the first, the third of one letter more than the second, and so on, increasing by one letter each verse, so that the appearance of the lines exactly imitates the gradual rise of the front pipes of an organ, pipe after pipe. And to these he has appended shorter verses, all of the same length, which stand for keys; and one is at the bottom of each pipe. Now there are twenty-six verses in all, and twenty-six keys to match. In this way we know infallibly the compass of the ordinary organs at Constantinople in the time of Optatian.

After this prime information everything is easy. Taking a step from Constantinople to the court of Charlemagne at Aix-la-Chapelle, we can easily and reasonably assert that his organ, built after the model of that of the ambassadors, had twenty-six keys, perhaps more, but certainly not less. As to the number of its pipes—since it could "roar as loud as thunder, and yet be reduced to the softness of a lyre or tinkling bell"—if we only credit it with one stop to perform the change from loud to soft, there must have been twice twenty-six, fifty-two pipes in the organ; if with two stops, thrice twenty-six, seventy-eight; and so on.

Built, then, in this form, and after the pattern of the famous instrument at Aix-la-Chapelle, organs began to be multiplied throughout France, and from thence through Europe at large. In the shape we have described them they were a compromise between the water-organ and the wind-organ; and the latter seemed now to have effected a permanent lodgment in organ-building, and to have begun the career of triumph over the rival form, which it was eventually to oust from any partnership in the instrument at all. Yet, so conservative are men, and particularly organ-builders—if we may judge from the present instance—that the water-organ, pure and simple, was again and again returned to in the future, as if the utility of bellows was entirely out of the question. In the reign of Louis the Pious—Charlemagne's successor—we hear that the combined wind and water-organ had quite dropped out

of fashion again, and nothing but water-organs were being built all over the land. The leading organ-builder of the time was named George the Venetian, and of all the numerous organs which he supplied to the churches and chapels of France, by the command of the King, not one was there which was not a water-organ of the most approved and indisputable type. This epoch was plainly one of retrogression for the art of organ-building, and similar epochs of retrogression followed at intervals afterwards. But these, like the former, were merely temporary. Little by little the water-organ dropped completely out of use. The compromise between the wind and the water-organ of Charlemagne's day supplanted it everywhere, and finally this form began to give way before the genuine wind-organ, as we understand it to-day.

It was towards the commencement of the tenth century that bellows began to appear universally as the feeder of the organ, instead of the hydraulic mechanism which had held its own so long. The unsteadiness and weakness of the bellows—the main objection in time past, and a terrible drawback even in the present case when the bellows were still the same simple household bellows which are employed to light fires to-day—this unsteadiness and weakness, then, of the blowing was counteracted by using a multitude of bellows at the same time to feed the organ, so that while one was filling another could be exhausting, and thus a constant current of air could be kept up. Or rather there were two ways to counteract the deficiencies of bellows:—The first was to use many bellows, as we have said, the second was to make the organ so small that one pair of bellows was sufficient to feed it. And both these plans were adopted. And the first tended to produce enormous organs, far larger than any water-organ ever constructed; while the second produced organs supremely diminutive. For in the first case it is plain that since the supply of wind was unlimited, now that the idea had occurred of multiplying bellows indefinitely, there was no limit also to the size of the organ. And a remarkable spirit that was passing over the architecture of this period was loudly calling large organs into requisition. For at the early part of the tenth century, the time we write of, the great Romanesque churches were beginning to cover France, England, Germany, and indeed the whole of Europe. And what could a puny organ do in the illimitable vaults of their roofs or the deserts of their aisles! Organs therefore began to grow with the churches, and immense organs were the consequence. In place of one rank of pipes to every stop, ten were now employed, so as to ring out the sound into the huge empty space of the church. Even the compass of the organs was extended far beyond the limits hitherto observed; and two players were employed to double one another in their accompaniments to the voices. And the organ itself grew in this accession to its strength, not only in its case, which it plainly must, if only to contain the multitude of additional pipes; but the very keys were made larger and broader. The compass of eight notes, which at first could be easily spanned by the thumb and little finger, could now scarcely be included by the out-stretched arms. With their fists, even, were the players compelled to strike the broad flat keys, while round the organ rows of bellows stood like casks, sometimes thirty in number, and two or more bellows-blowers to each.

But we have next to speak of the second development of the organ at this time, whereby it became dwarfed and stunted to a little thing, so small and so diminutive that it could be held in the palm of the hand. These tiny organs were plainly of no account for church purposes, and were principally in use among the wandering minstrels, who could carry them

easily about with them, since they were so light and delicate in their make. And the idea of these little organs had arisen naturally in the gradual development of the instrument, out of the question of the adaptation of the bellows to the organ, which might be done, as we said, in two ways, either by multiplying and increasing the bellows to the necessity of the organ or by diminishing the organ to the capabilities of the bellows. The latter plan gave these dwarf organs as its consequence. They had but six notes, these tiny organs, and were so light, as we have mentioned, that they could be held in the palm of the hand. They had a pair of bellows at the back, which the player could work with his left arm, holding them in the fold of his elbow, while he played the keys with his right hand, supporting the instrument on the palm of his left. And they puled and piped so melodiously that every one was glad to hear them—dainty little mechanisms, artful toys, that yet would make rare harmony. They are the triflings of the Middle Ages, and many more such musical follies of mechanic might we set down here; for philosophers in their studies were not above coquetting with invention, and devising quaint oddities of music like these little Regals, for so were the tiny organs called, because they “regaled” and refreshed the ear of all who heard them, they sang so merrily.

But the mean between these dainty toys of minstrelsy and the enormous unwieldy organs of the churches was attained and preserved in the organs of the monasteries, where there was no leviathan building to call great organs into existence, and none of the gaiety and frivolity of life which charmed itself with the frolicking of the regals. The organ had, therefore, held on its normal life there, had maintained due proportions, and had, at the same time, profited by all the improvements which had been introduced from every side into its construction. It is to the monasteries of this age that we owe the perfection and early maturity of the great instrument, and in the cloisters of the eleventh century organs were already being built which, in tone and structure, differed extremely little from our own. The aim which the monks set before themselves was “to cultivate beautiful sound first and before all things.” “Let all else be sacrificed to that,” says one. “We prefer it beyond all other objects,” says another. Another monkish writer complains of the rawness and coarseness of the great organs in the churches, “but in our chapels,” he says, “everything must be melodious and sweet.” Another taxes the little regals with “vain piping and honey-sweet fooling; but with us,” he asserts, “there must be that divine solemnity of tone which befits the services of those whose lives are devoted to God.”

With such conscientious aims and high motives in their organ-building, can we wonder that the monks brought the instrument to the highest state of perfection, and in their zeal for its improvement spared no pains either by the inquisitiveness of travel or by the ingenuity of their own invention to cure the instrument of its many deficiencies, and make it worthy the service they aspired to celebrate?

It was about the beginning of the eleventh century that the monks took diligently to organ-building. Sigo, Abbot of the monastery of St. Florentius at Ligeris, began the movement, and his example soon found many imitators in the various monasteries of Europe. To show how much was effected by them and at this early period, we cannot do better than give an account of the interior of an organ-building monastery of the time, and of the organs which were built there. The complete furnishings of the organ parts were manufactured in the monastery, as was universally the custom, even down to the smelting of

the metals of which the pipes were made. The metals employed for making the pipes were either lead or copper, but generally copper. The building-frame of the organ and all the interior woodwork was made of plane wood; and the structure of the instrument, as made by the monks, we have scarcely contrived in the space of nine hundred years to improve upon. There was first a frame which contained the bellows, and the wind passed from thence into the wind-chest, not, indeed, by a wind-trunk, as with us, but by a number of holes communicating with the bellows, which answered the same purpose. Above the wind-chest there was another frame containing the grooves, the upper-board, and, fitted on to this, the pipes. This was all closed in with a bottom made of plane wood, which was furnished with contrivances similar to our pallets, by which the wind might pass from the wind-chest into the grooves. Above the grooves came the upper-board, as we have said, in which the pipes were set. But instead of being made of continuous pieces, as with us, the upper-board was made of several separate pieces of wood, each groove having its separate piece above it, and in this its pipe or pipes were set. The keys acted much as in our organs—that is to say, with pull-downs passing through the wind-chest, and drawing down pallets, which allowed the wind to pass at once into the grooves. But in other respects their action was simpler, for there were no stickers or back-falls, but the key communicated direct with the pull-down, and for the purpose of working it was made to move a little outwards each time it was pressed, by which contrivance the pull-down, which was fastened to it, and ran slanting through the wind-chest up to the pallet, was drawn down a little, and so opened the pallet, which admitted the wind to the groove. Now to prevent the keys coming out too far each time they were pressed, pins were placed in them where we place our pins, so that the key came forward to such a point, and then, when the finger was lifted, it flew back again to its original position. And in this way was the mechanism of the key-action contrived. But as to how the stops acted, on this point we receive no information, though probably it was by the same cross-slides as with us. We have previously made the assumption that slides were the original action by which the keys worked in the ancient organs, and that this action was afterwards transferred to the stops, on the discovery of a new and neater key-action. The elaborate account of the key-action given above leaves no doubt that the change had been effected long ere this, and very likely, as we have surmised, in the earliest times. The keys had their names written on them by letters of the alphabet, in black on white, or sometimes, though not so often, in white on black. The bellows were still apparently of the primitive shape, though larger, and worked with long handles, much in the manner of our own. Several might be used, as we have said before, and the case was increased or diminished in size according to their requirements. Above the organ, when finished and placed in the chapel, was suspended a canopy of drapery to keep the dust out of the pipes, which might be drawn up to the roof and let down. It was always drawn up during the playing.

Such were the organs made in the monasteries during the eleventh century. And there were two sizes of them made for the purposes of the choir. There were the Positives and the Portatives. The Positive, or stationary organ, was the large organ stationed and fixed in the chapel. The Portative organ was considerably smaller, and could be easily lifted from place to place. During the practice of the choir it was the custom to place the latter in

front of the Positive organ, and for the organist to sit between, playing now on one, now on the other, as he was rehearsing the singers in their parts or showing them on the Positive how the piece would sound in the service.

At this point the early history of the organ naturally ends. Later improvements seem to have contributed but little by comparison to the perfection of the instrument, and nine hundred years have scarcely been able to add one single invention of any consummate value to the arts of workmanship and design which were already known and practised in the eleventh century.

THE "LOBGESANG."

A COMPARISON OF THE ORIGINAL AND REVISED SCORES.

(Concluded from page 532.)

No. 10. Final chorus. The opening section of this number (*Allegro non troppo*, formerly *Allegro moderato*) stands now as first written, with regard to the voice and string parts. In the original score the wind instruments are very sparingly used, and for the most part double the voices, while there, as in the revised score, the strings play a succession of detached chords. Mendelssohn could have had no difficulty in discerning the "lean" effect produced, especially as the different sections of the choral voices are treated in a fragmentary manner. He saw this so clearly, indeed, that he took extraordinary measures to obviate it, not only giving sustained harmonies to the whole of the wood-wind, but also writing an organ part, and thus securing for the opening of the chorus its peculiar elevation and sublimity.

The second section (*Più vivace*, formerly *Allegro vivace*), like other movements in the work, was rewritten in notes of half the original value. Moreover, the opening choral phrases underwent important alterations in revision, as a glance at the subjoined serves to show:—

No. 1. Original.

Revised.