

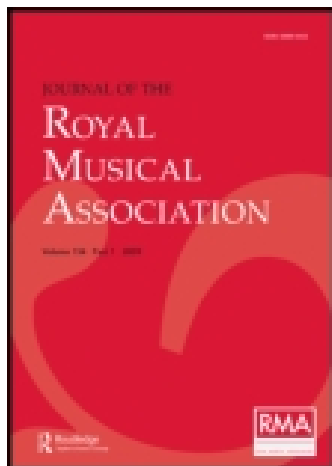
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JUNE 16, 1908.

F. GILBERT WEBB, Esq.,

IN THE CHAIR.

THE EVOLUTION OF THE FLUTE.

BY T. LEA SOUTHGATE, D.C.L.

FROM time to time not a few examples of examination curiosities come before me for observation and criticism. I sometimes think that those who set these papers, and who are responsible for this modern outcome of to-day's musical position, are more desirous of plucking unfortunate candidates than of ascertaining the practical value of their knowledge. I could mention items which would puzzle not a few old and experienced musicians to answer. I remember seeing in a paper by a Welsh examiner the directions: "Give an account of Church Music from the 16th to the 19th century"! Another: "What would be the mathematical value, if added together, of a dotted crotchet, a dotted quaver, a double dotted semiquaver, and a double dotted demisemiquaver, all contained in a bar, value of one semibreve?"

Well, it has struck me what a sweet question it would be to set: "Who invented the flute?" It sounds so simple and bland-like! I think my answer would have to be "No one person!" This important member of the modern orchestra, like its companions of the wood-wind, brass and strings, represents the evolution of countless ages. Like our English oak, the flute grew from a germ, and grew slowly. Owing to the needs of composers, and thanks to the several inventions of many minds, the flute has been developed from what may perhaps be termed an accident. The instrument now in the hands of our artists has been laboriously thought out, and is constructed with all the skill that manufacturers have brought to bear upon their task. We are the favoured heirs of the ages. Sometimes one is given to think that in these strenuous days we are not sufficiently grateful to those who have laboured before us and left to us the results of their earnest toil.

In the brief space of time allotted to me here I can do little more than glance at the evolution of the flute, a process extending over thousands of years, speaking briefly of the successive stages of development until we arrive at the

perfected instrument of to-day. Thanks to the ability of Mr. J. Finn, you will be enabled to hear various examples of these flue pipes, as this musical family is technically termed, from Egyptian specimens of some 4,000 years ago, to the concert flute of to-day. There is not time to dwell at any length upon the large number of improvements in construction which the ages have brought forth, or to tell of experiments that have been abandoned as the outcome of the law of the survival of the fittest. Nor shall I describe the minute construction of the modern flute. It must be enough to point out its typical stages, and let you yourselves be judges of the gradual advance towards perfection—if one may dare to apply that exalted term to anything mundane.

What a valuable work it would be, and of what great assistance it would prove to the writers of musical history, as well as to students of the Art itself, if some leisured College Don, able to read the Greek and Latin authors with facility, would extract from their writings all the passages relating to music! There are plenty of men at the Universities—not too hard worked, may I say—who could accomplish this task. From time to time desultory extracts appear, and indeed some few books have been put forth, but there has been no systematic musical searchings of the classic pages of the past. In this prosaic, exact age it may be admitted that the pretty tale of the birds and beasts (I do not recollect whether there were any fishes) that followed Orpheus about when he treated them to a solo on the flute or lyre, is poetic enough to have inspired some beautiful music. But we long to learn something more definite about instruments in use so often alluded to, and also what music was played upon them. There exists plenty of material; so I venture to express the hope that some day leisured scholars will help musicians better to know this. I would especially suggest consulting the work by Villoteau, a musical savant who accompanied Napoleon Bonaparte to Egypt. He not only tells us much of interest about the ancient music of that wonderful people, but further supplements his French text with quite a large number of references to music from the Greek and Latin classic authors. I fortunately possess this rare number of the monumental twenty volumes which Napoleon commanded and had published, and have learned much from it.

The legends connected with the origin of the flute are many. Not a few old writers have attributed to Apollo the invention of the pipe as well as of the lyre; others assert that the light-footed Mercury first made it, and gave it to the son of Jupiter and Latona. If Apollo is identical with the Horus of the Egyptians, then one inclines to believe that in times of hoary antiquity the flute first originated on the banks of the Nile. A claim little known is that Krishna, the ancient Hindoo

deity, gave his followers the flute, and there is some evidence which points that way. But I must not linger over this, beyond observing that there are some remarkable coincidences in the fabled histories of Apollo and Krishna which indicate that they might be one and the same person.

Then Minerva, the goddess of the liberal arts, has the credit of the invention; indeed, one of her names was "Musicia." The legend is that Minerva fashioned the primitive instrument from the leg bone of one of her stags. For long it bore the name *tibia*; indeed, the early players were called *Tibicenes* among the Latins, though *Αυλητής* with the Greeks. Ovid's tale is that, on playing her favourite flute before Juno and Venus, the jealous goddesses ridiculed the distortions of her face. Then, of course (like a lady), Pallas Athene had recourse to a reflecting mirror; convinced by this, she threw away the instrument, predicting a melancholy end to whoever found it. Well, we know what happened to Marsyas, who picked up the flute, practised it, and, unfortunately for his skin, entered at a Competition Festival. It is, however, quite possible that this may have been a *reed-blown* pipe, and not a flute proper; the two types are often confused and mixed together by the old writers. It is significant that the reed players shielded their cheeks by wearing a *Φορβειδ* or *cāpistrum*, as a protection against the pressure of the breath; this device seems hardly necessary in the case of the "soft-breathing flute."

Pythagoras makes the Phrygian King Hyagnis the inventor of the flute, relating that he composed music for it in the Doric mode in praise of Bacchus and Pan. Bacchus, who appears to have been Osiris of the Egyptians, and perhaps identical with Schieva in the Hindoo mythology, is also said to have designed the flute. By the way, it is a little curious that in the expedition of Bacchus to the East, the God of Wine is stated to have furnished his army with musical instruments, and to have conquered the people by means of music rather than by the sword. The fact is often overlooked that civilization and progress has not been confined to our European continent and adjacent lands; there was quite an old civilization in the far East. The years have passed on, bearing on their rolls two distinct records, and it is quite likely that Music owes more to China and India than is usually conceived. Probably the violin bow and the free reed came from the Flowery Land.

Pan, that quaint son of Mercury, has also the credit of inventing the flute. The legend is, that the horned monster with feet of a goat was pursuing a virgin of whom he was enamoured. Just as Pan was seizing her, she prayed the Naiads, the nymphs of the water, to change her into the waving plants of the river. And so Pan caught the reeds in

his hands instead of the fugitive. The winds moving these reeds backwards and forwards occasioned musical sounds, which Pan perceiving cut down and made pipes of the stems. He bound the different lengths together, thus several notes were obtained from the contrivance. I should say that examples of this device made in stone are found in the far-away tombs of the ancient Incas of Peru. The Greeks called the instruments the *σύριγξ*. Then Midas, King of Phrygia, is said to have cut reeds from the river Pactolus and fashioned the flute which he gave to Pan; afterwards, over-praising him, he invoked the revenge of Apollo, a brother musician.

Credit is rightly attached to those who have fashioned the instrument, but I am inclined to believe that the original idea of the flute was an accident. May it not have been suggested by the wind passing over the tops of the broken reeds growing by the river side?

Lucretius sings:—

“Fond Zephers playing on the hollow reeds
First taught the peasant how to use the pipe.”

And another poet:—

“And while the soft evening gales
Blew o'er the plain
And shook the sounding reeds,
They taught the swains.
Thus, the pipe was formed,
The tuneful reed.”

Surely we are justified in supposing that someone more curious than his fellows, or, say, with an ear more keenly attuned to the music of natural sounds—the sighing of the wind through the waving branches of the trees, the fall of plashing water, the songs of the birds, the moaning of the sea, and so on—may have been pleased with the notes he heard from the reeds—“Shaken by the wind,” as was said of old. So he waded into the shallow water, broke some of them off, blew across, or, better still, down the pipe, and then obtained the effect that Nature's breeze had produced. He must have perceived that different lengths of reeds produced different notes. It need not have occupied years to select and arrange these in suitable lengths, so they were tied together in a row, and thus was produced that very ancient instrument the Pan-pipes. Here, then, seems the origin of the flute, the embryo of the majestic organ.

Of the ancient lip-blown pipes themselves we have a few remains, chiefly from Egyptian and Greek tombs. But there is quite a wealth illustrating these to be found on architectural monuments. Here are two curiosities recently

sent me from a Greek tomb in Sicily. They are made of baked clay, and one might mistake them for scent bottles. On blowing across the circular lip of the little jar a soft musical note is evolved. It is believed that these curious archaic instruments were placed in the tombs of dead musicians, so that their souls should occasionally refresh themselves with some music of the past. Flute-players appear on the frieze of the Parthenon; there are many shown on the wall-paintings in the Egyptian tombs, together with not a few notable sculptured figures with instruments, and representations on vases, cups, bronzes, coins, &c., depicted in many art works. With these examples before us, and the allusions to music of the period in the pages of the classical writers, there is ample evidence as to the prominent position which Music held in old times and what instruments were in use. A very early mention of the flute occurs in Homer's description of the shield of Achilles, and he tells us that the *Syrinx* was used by the shepherds to entertain their flocks. Aristophanes, 450 B.C., in one of his comedies, says: "Let us weep and wail like two Flutes breathing some air of Olympus."

You shall now hear the Pan-pipes sounded. The example is an old English specimen from my collection. Think of the enormous antiquity of the simple instrument, and remember that it is still to be heard in our streets to-day, played by the Punch and Judy performer. Judging by the statues of the god Pan, the instrument does not materially differ from the type common in Greece quite 3,000 years ago. A poet sings:

"The pipes of Pan to Shepherds
Couched in the shadow of Menalian pines
Was passing sweet."

According to Strabo and Diodorus Sicculus these pipes were heard in the ancient Panopolis, the Egyptian "City of Pan," centuries before even the remote Greek date.

(The Pan-pipes were here played.)

You know that in all the reed tribe of plants the stem is hollow, but here and there are to be found knots; these occur where a leaf is sent out from the stem: at this point Nature puts forth a circular wall to strengthen the plant, dividing it into a series of hollow and air-tight sections. Each tube in the series of Pan-pipes stands for one of these sections; the larger it is, the deeper the note it gives forth; we term this a stopped tube, because one end of it is closed. Now a word on the theory of tone-production. If you blow across the open end, or partly down one of these tubes—or a common latch-key, for example—so adjusting your lips that the stream of breath impinges on the *edge* of the tube, then

the column of air is broken, part goes into the tube, and part travels outside and along it. This flutter at the edge causes a series of rapid vibrations to take place, and the result is that sound is evoked. This is the acoustic principle underlying the production of sound in all the flue wind instruments.

The ancients only got one note out of each tube of the Pan-pipes. But a development was to come, and we see its first step in the Sèbis of the Egyptians, pipes varying in length from three feet to eight inches. The knots, very hard, were burnt through, and the result was a tube open from end to end. Some one must have reasoned that as pipes of different lengths gave different notes, so if one could make a break in a long pipe, then another and more notes could be got; the result was the burning or cutting of finger-holes along the pipe. The soft cushion at the end of the fingers sufficed to close the holes, causing the vibrating column of air in the pipe to sound just the length of the tube partially left open by an uncovered hole. The law of vibrations reduced to a mathematical formula would have told them as much as this, but until the time of the Greek theorists little was known about acoustic theories; they determined in practice just what was required. One hole having given the desired result, more must have quickly followed until the four notes of the ancient tetrachord were procured. Eventually all the notes of the diatonic scale were obtained. In the truly remarkable arghool reed flute from the Akhmin Pyramid we get eleven holes, more than, apparently; we have fingers to cover. As you will perceive when these Sèbis are sounded, the action of the breath through the lips closely approximates to the effect of the breezes of old. I should say that these open tubes are quite difficult to sound. The Nây heard in Cairo to-day is just such another open tube with finger-holes as was played on the banks of the Nile many thousands of years ago. Nothing alters much in Egypt.

(Two copies of Sèbis from the Egyptian tombs were here sounded, and a little piece was played upon a modern Egyptian Nây—"Annie Laurie").

Music, I should remark, was first a pastime, then an art, and later on it has become a science. I am pretty well convinced that we owe our music to the ancient land of the Pharaohs. Pythagoras, the Greek philosopher, lived there nearly twenty years. He carried their music to Greece, where it became in a measure systematised and studied by the philosophers from its mathematical side. From Greece it went to Rome, and from Rome has spread over the European continent and beyond. Moreover, we perceive in Egypt the type of every modern instrument used—percussion, wind, and string. Among the numerous paintings in their

tombs we find a remarkable flute concert on the walls of the Gizeh pyramid. Here a virtuoso seems to be playing a concerto, accompanied by a small band of flutes, not, it should be observed, of the *same* lengths, thus giving different notes. Does not this suggest some possible harmonies? The soloist is standing up to play, the accompanying flautists are shown kneeling. There are plenty of examples of concerted music depicted, sometimes as many as seven different instruments are being used together. From their construction these could not possibly have been played in unison or octaves. Surely there is a significance in this. I confess that this early flute performance fascinates me.

We have abundant testimony that there were quite as famous players in ancient times as in these later days. Pindar, born 522 B.C. at Thebes, second only to Homer in the poetic beauty of his conceptions and the loftiness of his verses, the prince of Greek lyrists and himself a flautist, wrote an Ode (the 12th) in praise of Midas the Sicilian, a flute-player who twice obtained the laurel crown at the Pythic games by his performances on some flutes made of the reeds cut from the river Cephissus: Midas of Agragas the "Glorious" has thus been immortalized. Plutarch, in his Essay on Music, mentions Sacādas, a musician of Argos, who three times won the prize at the Pythian games. Strabo and Diodorus Sicculus speak of several famous flute-players. Lamia bewitched the artistic world of Greece; she paid enormous prices for her flutes made of boxwood, lotus-wood and sycamore by the cunning craftsmen of Alexandria; her admirers built a temple, and divine honours were paid to her. Isocrates, the celebrated orator, was the son of a rich musical instrument maker at Athens; apparently music did not pay, or pay sufficiently well, so he threw up the profession and opened a school for philosophy and oratory. Demosthenes and Lycurgus were among his pupils. It seems that the flautists of Alexandria attained great fame in playing on that instrument. They often went to Greece and elsewhere, obtaining large fees, and they wore a distinguishing dress. Some of the Alexandria metal flutes were chased and adorned with figures clothed with flowing drapery; they were quite as much works of art as the beautiful lutes and the painted and inlaid virginals of a later age. Not many of these actual "spoils of time" are left to us, but we can see examples on a number of Greek and Etruscan vases in our museums. Ismenias, a celebrated musician of Thebes, had the strange compliment paid to him by Atheas, King of the Sythians, that 'he liked his flute-playing better than the braying of an ass'! At least, so Plutarch says. We are told that his flute, bought at Corinth, cost a sum of £580 of our money. This statement may appear astonishing, but it should

be pointed out that in an age of wealth and luxury, when flutes were made in ivory, finely carved, mounted in gold, perhaps encrusted with precious stones, there were artists just as anxious to obtain splendid specimens of the notable makers' skill as we meet with to-day, when wild prices, running into four figures, are given for a Strad violin, the actual cost of the wood and labour originally bestowed on which was under a sovereign. There must have been notable makers in the past who produced artistic work in wood, ivory and ornamental metal, and there were rich players ready to pay for a fine instrument and a name. We know that the stalks of the lotus which grew by the Libyan desert were specially valued and exported to Greece for flute construction; the Alexandrian makers claimed to possess secrets for the manufacture of their products. Among other materials used was marble; fragments of such flutes are in our museums. Only lately, one of our members, Colonel T. B. Shaw-Hellier, in digging the foundations of a house he is building at Taormina, Sicily, came across pieces of a Greek marble flute.

It may perhaps afford some idea of the high esteem in which the flute was held in Egypt to mention that, like the *Néfer* (the ancient guitar), which stood for the quality "good" in their hieroglyphic system, the flute in this picture alphabet represents "precision, regularity and truth." It is curious that the holes in the instrument were covered with the second joint of the fingers, as is the Japanese practice to-day. No instruments were in more common use in Egypt than the flute proper, together with the allied instruments provided with the arghool reed, the origin of the chalumeau and parent of the clarinet. Flutes were used by street vendors to announce their wares: the milkman tootled a special tune; they were employed in conjunction with the rhythmic clapping of the hands to keep labourers up to their work—the masters took care to prevent the "going canny" in vogue to-day. Athletes boxed to the sound of the flutes; we are told their music was employed to entice crabs—a cheap sort of bait for the deluded artistic crustaceans of the day! The rowers in Cleopatra's barge kept time to the sound of the instrument. Shakespeare says:

" Their oars were silver,
Which to the time of flutes kept stroke."

Flutes were first attached to the temple of the god Apis: at his annual solemnity the flute and sistrum only were allowed. Herodotus, in Book II. of his History, says, that when the outdoor festivals of Diana and Bacchus were celebrated, flute-players went from village to village accompanied by singers and crotalists with clappers to keep time.

Remember how great was the influence of Egypt, and how long this lasted. It extended to all lands bordering on the Mediterranean, and her royal dynasties with their wonderful civilization were a living force for thousands of years. Music marched with and was a component part of this civilization. Perhaps some may be surprised to hear that at Rome there existed "A college of flute players," probably some sort of a Guild with protective organization.

Now I must make a jump over the gap of time that separates us from the palmy age of Egypt, Greece and Rome. Here are some living examples of the far-reaching influence of ancient Egypt. This is quite a modern Hungarian pipe, open from end to end, on which I will ask Mr. Finn to play you a very familiar English air—"Home, sweet home."

(The Hungarian pipe was played.)

And here is another example from Bulgaria, also an open tube, on which "The British Grenadiers" is practicable. Perhaps there are some here who frequently see in our newspapers particulars of some fresh atrocity in unhappy Macedonia, and may think that just now the British Grenadiers themselves might do good preventive service in that turbulent region. Both these pipes are descendants of the ancient Này, but the scale is to some extent modernized.

(The Bulgarian pipe was played.)

I have mentioned the difficulty experienced in sounding these open tubes; I can rarely succeed in directing the stream of air in the exact place, and at the same time in covering with the lower lip sufficient of the orifice of the tube to close it properly. In this type, which comes from Uganda (an old cannibal land) and is ornamented with a ghastly trophy of human hair, certainly not native, you will perceive at the top a small piece cut out about the shape of a finger nail. Who first thus nicked a pipe one cannot tell; I should say that the device is also found in the old Chinese Krena. It marks a decided advance, indeed it is a departure which has had far-reaching consequences; from this are developed the recorder and flageolet with their fipple or whistle-head, and, most important of all, what we term the flue pipes of the organ. There is little difficulty in directing the breath on the sharp edge of this kind of tongue, producing the flutter, and then immediately the pipe speaks. Mr. Finn will sound this flute, and then another of the same type which was sent me by my nephew, who happens to be a high official at Khartoum, and had to make a long journey to the South of the Soudan to punish the Niam-Niam tribe for making meals of our labourers working on the Uganda railway. Observe the construction of this *calamus* pipe; it is some species of the *arundo donax*, and has been covered with leather, oiled to prevent the wood splitting owing to the great heat of the

climate, and it is clasped round with sheet tin; the mouth end is nicked and furnished with a protecting band of snake-skin. The notes are beautifully soft.

(Here the Uganda and Soudan flutes were sounded.)

The nick in the end of the pipe must have soon become mechanically improved and developed into the familiar and widely spread whistle-head. Here is an example made from a bone. The pipe has only three holes, and is ornamented with curious beetle wings intended, I am told by my son, who sends me this from the Upper Amazon river, to be shaken when played.

(Here the Amazon whistle was played.)

And here is an example from Tunis. (Sounded.)

Now let us pass through the gates of the past into our later world. The first product of European civilization we come to is the old English Recorder, sometimes called the beaked flute, because the mouthpiece takes the form of a duck's beak. I prefer to use the English name; not the French, "Flute-à-bec." The recorder was a soft-toned instrument very much in favour with our forefathers. Every "gentleman of quality" played either the lute or the recorder in Tudor and Jacobean times. Shakespeare often mentions the instrument; indeed, there is a scene in "Hamlet" in which it bears an important part—an ignorant commentator explained the expression, "Here come the Recorders," as the advent of certain high law officers! Pepys was much taken with the instrument. In his "Diary," under 1668, he writes:—

"To Drumbleby's and there did talk a great deal about pipes, and did buy a Recorder which I do intend to learn to play on, the sound of it being of all sounds in the world most pleasing to me."

It is difficult to obtain any expression from the recorder, and its quiet, soft tone had to give way to the stronger transverse flute: the type only exists to-day in the common whistle and flageolet. Our esteemed member, Mr. Christopher Welch, in Papers he has read before the Musical Association, has dealt so completely with the instrument, and the many allusions to it in early literature, that I need not further dwell upon this once favourite member of the flute family more than to mention that, like other instruments of the time—viols, cornets, cromhorns, dolce-flutes, hautboys, &c.—recorders were made in sets—that is, one each for the soprano, alto, tenor and bass parts. They were spoken of as "Chests," because one large case or chest held the entire family. Recorder probably comes from the obsolete English verb "To record," that is, to sing as a bird does. An old poet writes:—

"They longed to see the day, to hear the lark
Record her hymns and chant her carols blest."

Mr. Finn will play on this specimen two little pieces written for it, which appear in Humphrey Salter's "Gentee Companion" (1683); they are entitled "Hail to the Mertoire Shades," and "A Minuet."

On this more modern example, which comes from the East of Europe, he will play another air from the same collection, entitled "Hey Boyes, up goe we."

Mr. Hermann Smith, in his interesting book "The World's earliest Music," says that the flageolet was invented by Juvigny, who played it in the "Ballet Comique de la Roynie," in 1581. Properly speaking, it should have a bulbous or flask-like head containing a piece of sponge to condense the moisture from the breath. The old French name *flacol* and the German *flashinet* seem to indicate that this is the more correct derivation of the word, certainly it looks like a French diminutive.

Pepys was also pleased with the flageolet; it was more easy to play and "nimble" than its more stately ancestor. He writes:—

"To Drumbleby's the Pipe-maker, there to advise about the making of a flageolet to go low and soft; and also a fashion of having two pipes of the same note fastened together, so I can play on one and then echo it upon the other, which is mighty pretty."

No doubt he often attempted "The Newest Nightingale" with all its trills and flourishes. This you shall now hear; it is from "Greetings' Pleasant Companion" (1675).

"Play us a Lesson on your Flageolet," writes Sir Thomas Moore.

(Here was played "The Newest Nightingale.")

This is a modern small example brought from Tunis. Greeting, in his book eulogising the instrument, says: "It may be carried in the pocket, and so without any trouble be a companion by land and water."

(The Tunis flageolet was sounded.)

The double flageolet, *i.e.*, the two pipes fastened together, which the delightful old diarist desired to possess, stands for the last of the duet type of flue wind-instruments, with the exception of the bagpipes. Bainbridge, the clever English pipe-maker, succeeded to some extent in making it fashionable about a hundred years ago, and published a "Tutor" for it. Either tube can be used separately, or they can be played together. If this represents the pipes Pepys projected, you will be able to judge whether the effect is "mighty pretty," as the old fellow anticipated. Mr. Finn will play "The Muleteers' Chorus" from this book, a pretty little piece in two parts.

Triple flageolets were also made by the ingenious Bainbridge. I have not heard one. This modern double instrument is

brought from Dalmatia by our member, Mr. E. J. Dent, of Cambridge. He heard it played by a shepherd boy. The two pipes are cut out of one piece of wood, and the instrument bears some interesting ornamentation. (Sounded.) Here is an example from Albania. It is a simple flageolet with a drone, which can be varied; it is cut from one piece of wood. On it will be played a fragment of Slavic music, on which theme Terschak, the flute virtuoso, has written an elaborate piece dedicated to Mr. Finn. (Played.) Specimens of the type are in the Museum of the Brussels Conservatoire, where they are erroneously termed "Zampogna," which is really the Italian name of the Calabrian bagpipes.

This is an old English pitch-pipe, having a broad whistle, head and a sliding stopper. It was formerly used in churches where no organ or instrument was available for leading the singing. The note was blown by the clerk, and off the congregation started. The question of pitch was often a subject of dispute between the clerk and the flock. It is recorded that Dr. Ford, the musical rector of Melton, after his clerk had blown the note for the Psalm, called out, "John, you have pitched it too low, follow me." Then, clearing his voice, he lustily began the tune. Another tale I have heard. A careless clerk pitched a tune so high that the top notes could not be reached, and an abrupt stoppage took place, whereupon this official exclaimed, "Dar'nt if oi aint pitched her too oigh," then, adjusting his pipe, he gave the proper note. This contrivance is still used at glee clubs to sound the tonic for the singers. If blown too hard, the note set is sharpened.

An example of the flageolet type rarely seen in this country is the French colinette; it has a brighter tone, and is sometimes employed in the small French operas; occasionally it is played in the streets and at country dances. "Come ashore, Jolly Tars, with your trowsers on," which Mr. Finn will play on it, is an instance of how jolly our ancestors could make a minor tune, or rather one cast in the modes. It was originally an old song to the words, "The cuckoo's a bonny bird when he comes home." As sailors in past days took off, or tucked up, their bags for real work on shipboard, no doubt the sartorial direction in this song was intended to imply that they should join in the dancing and merriment on shore in proper ball costume.

(Air played on the colinette.)

A notice of the flute appears in the earliest book published on music in connection with instruments "Musica Getutscht" by Sebastian Virdung, issued in 1511. From the engravings it will be perceived that the set of four flutes shown are of the whistle-head type. Their scale of sounds and the notation is set out according to the German plan of the time; the author

considerately gives some wood engravings showing how the hands should be placed, and what fingers are required to cover the holes. A side-blown flute is also shown.

Martin Agricola, who in 1528 wrote a curious book on music and instruments in verse, "*Musica instrumentalis deutsch*," supplies pictures of the flutes of the day. Besides the whistle-head set of instruments, he shows four transverse pipes with round mouth-holes near the top, which he terms "*Schweitzer Pfeiffen*." And here is also pictured a recorder having a key for a low note which the fingers could not reach.

Other authors who depict the instrument may just be mentioned. Michael Prætorius, who published a "*Theatrum Instrumentorum*" in 1618, in his valuable pages of illustration shows a family of four recorders and some side-blown flutes. Father Marin Mersenne, of the Order of the Minorites, in the last division of his splendid, extensive work, "*Harmonicorum Instrumentorum*," the most complete and valuable old book on early music and instruments that we possess, dealt with the flute family at considerable length. He dwells upon their construction, differences, fingering, and the music suitable for them. He terms the recorder family *Tibiæ minores* and *Fistules Anglicis*. The oblique flute with the side mouth-hole he calls *Fistula Germanica* and *Helvetia*. Why this should be associated with Switzerland I am unable to say. He shows how to produce the notes in tablature, and sets these out on a stave of seven lines. This book is profusely illustrated with wood and copper engravings. I often tell enquirers, "If you want to know anything about old music, the form and construction of instruments of the past, temperament, and even the acoustic side of music, so far as vibrations are concerned, turn up the subjects in the pages of this learned work of a mediæval monk."

The Jesuit Father Athanasias Kircher, in his "*Musurgia Universalis*," 1650, does little more than copy Mersennus. I have not seen Hattettere, who in 1699 wrote extensively upon the transverse and other kinds of flutes. However, it is recorded that this author and player first used a transverse flute in the Paris Opera-house in 1690. Some interesting pictures will also be found in Father Bonnani's "*Gabinetto Armonico*," 1722.

Many later works have appeared on the flute. It is only just that I should mention two English authors, Mr. R. S. Rockstro and Mr. Christopher Welch; Mr. Welch's exhaustive enquiry into the invention of the Boehm flute, and what led up to this, is a monument of erudition and patience of which the Members of the Musical Association may reasonably be proud as coming from one of their body

It is not possible to fix the date of the introduction of the transverse flute, *i. e.*, played from a side-hole. Machault, a French 14th century poet, mentions the instrument. Practically it is a reversion to the typical Pan-pipe, in that, as well as the old pipe and peaked flute, one end of the tube is closed; but instead of being blown across from the other open end, an embouchure is cut near the closed end of the tube, and into that the player directs his breath, the lips playing an important part in controlling the tones. Rockstro, in his book on the flute, says the ancients had no transverse flute. He is wrong. The Sèbi was held obliquely, though blown from the end; this was the parent of the Greek *πλαγιάυλος*, certainly an oblique played flute. Its common appellation, the German flute, is ridiculous; it is quite certain that this did not emanate from Germany, as has been asserted. The Chinese Tsche is far more likely its origin. This is an ancient bamboo flute closed at both ends, held sideways and blown through a hole in the middle. In that magnificent monumental work "Tree and Serpent worship," by Sir James Fergusson (1873), an official publication of the Government of India, will be found pictures and photographs of the very ancient Buddhists' Topes of Sanchi and Amravati, funeral monuments in Bhopal, Central India. The dates of these wonderful erections is *circa* B.C. 50 to A.D. 150. On these are sculptured several figures playing on the side-flute. An instance is to be seen on the walls of the old cathedral at Kieff, Russia, the date of which is A.D. 1240. Similar examples appear in the remarkable pictures in the famous "Cantigas de Santa Anna," a manuscript of the 14th century, in the Escorial, Madrid; other instances are found in old missals. At first the flute, like the recorder, had six holes at the top and one at the bottom, for the thumb; chromatic intervals could only be produced by what is termed cross-fingerings, and the intonation was very uncertain. It is claimed that in 1726, Philibert, a Frenchman, added an additional hole, stopped by a key, D sharp or E flat; but there exists an engraving of 1690 showing a player using such an instrument. The introduction of three more holes furnished with keys is associated with the name of an Englishman, Joseph Tacet; thus all the chromatic intervals were provided except C natural, which was forthcoming a little later. Quantz, the teacher of Frederick the Great, composer, diplomatist, and a remarkable man, designed the mode of lengthening or shortening the head-joint so that the instrument could be tuned. By that time the makers constructed the flute in sections, which could be easily fitted together and made into a complete air-tight tube.

Time does not more than permit me to mention the names of Dorus, Pottgieser, Tromlitz, Weber, Siccama, Clinton,

Pratten, Captain Gordon, Richard Potter, Reverend F. Nolan, Nicholson, Carte, C^oche among those who sought to improve the instrument, nor to detail the experiments made with cylindrical and conical bores, the efforts to put the holes in their true tonal positions, yet so that they could be conveniently reached, the different systems of closed and open holes, and the various methods of fingering that have been tried in the onward march towards perfection. In modern times flutes, besides being constructed of various woods, have been made of gold, silver, brass and ebonite; perhaps this latter compound substance is the best material for the instrument.

The early European flute tribe of instruments, like those of the ancients, were simply diatonic tubes. If any chromatic intervals were required, they could only be imperfectly approximated by cross-fingering and variation of the breath pressure. We are not endowed with enough fingers to close the twelve holes required for the chromatic scale, so the early ladder of notes was limited. But the demands of composers had to be met, and, as time went on, the makers succeeded in the task. Eventually spring keys, controlled by the fingers, were placed over some of the holes. Who first thought of this device is not recorded; certainly he was a genius. I would mention that in Virdung's book, 1511, is depicted a bass recorder having a key at the bottom of the instrument, protected by a cap. The device is shown in all subsequent works. But I am of opinion that the plan of stopping off notes not wanted, and then making them available, is very much older than our 15th century. Pausanias, A.D. 170, tells us that Pron^orus the Theban invented adjustments by which the same pipe could be set to different modes. That reads obscure. But let me mention that four Greek-Roman flutes were found in the debris of Pompeii; they are made of ivory, twenty-one inches long and three-eighths of an inch in diameter; round the tubes are eleven rings of silver and bronze, with holes in them, fitting close to the tube, but easy to rotate by means of a loop or button at the bottom. So you see these could be turned round and made to correspond with the open holes of the flutes, according to what mode it was desired to play in. I put it to you: have we not here the germ of the *clavis*, i.e., "a key," to cover or uncover the holes needed for its particular performance? So it seems to me. Facsimiles of these pipes have been made by Mahillon, of Brussels. Another instrument of the same type, found at Salamis in Cyprus, is in the Cesnola Museum at New York. With an arghool reed this gives a complete chromatic scale. These, I believe, are the real *βόμβυξ* (silkworm) flutes of the ancients; they stand for a mechanical adjunct and advance on the simple pipe.

Practical success in all that seems needed was attained by

Theobald Boehm, a Bavarian born in 1794. After long experimenting he submitted three flutes to the public. The first was made whilst in London in 1831, when he played at the Philharmonic; the second, in 1832, was a conical flute, with the new fingering. In 1846 he introduced a tapering in the head-joint which ensured just intonation. He made the lower part of the tube slightly conical, put the holes in their true positions, and invented a system of keys and fingering, all of which improvements satisfied artists and introduced us to the beautiful concert flutes used to-day. It is claimed that Boehm's scheme with the fourteen sound-holes gives perfection of tune, equality of tone throughout, increase of power because of the enlargement of the holes, and greater control of sweetness because the notes are easily produced.

Before the perfected instrument is played to you, you shall hear some of its simple predecessors. Here is a Japanese example; observe the large size of the finger-holes. It was the family flute of a great noble, and was sent me by a friend from the Land of the Chrysanthemum.

(Japanese flute sounded.)

Here is a common example I bought in Portugal. It is made of baked clay; material, it may be observed, has not much to do with the tone-production of instruments.

(Portuguese flute sounded.)

Here is a whistle in terra-cotta, used in that country to attract and snare birds. (Sounded.)

This is an early one-key flute of English make. Of course its capabilities are limited, but its tone answers to the ancient description of the instrument, "The mellifluous flute." On it Mr. Finn will play two movements, an *Adagio* and *Allegro* from a Flute Sonata by Handel.

The flute tribe, unlike the reeds, and indeed other members of the great orchestral family, strings and brass, is not complete. Tenor and bass flutes have been made, but they are not satisfactory, although our forefathers seem to have considered them so when the Recorder chest was in use. There are both natural and acoustic difficulties which, perhaps, some day may be overcome, and then we shall have the pure, sweet flute-tone available throughout the orchestral compass. We all delight in the charming little fragment for three flutes Haydn has given us in the "Creation;" still more beautiful would be this characteristic tone-quality if tenor and bass parts could be added to it. There is a part for the bass flute in one of Lulli's Ballets written down to tenor C.

This is an admirable specimen of a silver alto flute made by Messrs. Rudall Carte; it goes down to fiddle G. Mr. Finn will play upon it a charming little piece, "Spring's Awakening,"

by Emil Bach. Mr. George, of the firm of Rudall Carte, has kindly lent this instrument. (Played.) Here is a past attempt to make the flute easier by providing a whistle-head joint which can be substituted for the ordinary embouchure; it is blown through a tiny little piece of pipe let into the side at the top. The tone is soft, but not much expression can be obtained. The old tune "All ye that love good fellows," will be played upon it. You may like to hear this specimen of a favourite flute in China; it makes a little departure from our instruments in producing a slightly reedy tone, owing to a piece of paper pasted over a side hole. An inscription on it relates to "Love and Moonlight." (The "Blue Bells of Scotland" was played.)

Now we come to the concert flute of to-day. See what the improvements of the ages, the thoughts of many minds, and the genius of men have done with the simple open pipe in use among the ancient Egyptians. In the short extracts I have selected for illustration, you will be able to note the beautiful, even tone, its brilliancy, and the expressiveness of our modern instrument.

It may be stated that the manuscript of the Beethoven Sonata was found in the Royal Library at Berlin in 1904 by Herr Ary von Leeuwen, the solo flautist of the Imperial Opera-house in Vienna. The work is not in Beethoven's handwriting, but it is fully admitted that the title-page is his. There seems every reason to believe that it is really an early composition of the master, probably written about 1790, to which period belong the early trios, serenade, and some sonatas.

(Mr. Finn played the "Air with Variations" from Beethoven's Flute Sonata.)

I will ask Mr. Finn to play one of the variations on a favourite German air in a piece by Boehm illustrating what is termed "double-tonguing." It gives one the idea that a theme is being played by one flute and another is accompanying it. Perhaps also there may be time for another variation, which exhibits the brilliancy of the instrument—and the agility of the player.

(The Boehm Variations were played.)

The fife is an early small $B\flat$ transverse flute, and has been much used for marching purposes in connection with drums. Its best form is seen in the modern piccolo, which is in effect an octave conical flute, and a useful member of the orchestra.

Here is the latest development. Mr. Giorgi blows his flute from a hole in the end; it is a straight, not a transverse flute. Naturally this would seem the correct position as corresponding to the oboe, clarinet, and so on. However, flute-players may hold a different view. Mr. Finn will play

a hornpipe on a piccolo of this type, the smallest member of the flute tribe and of the orchestra itself. (Played.)

I hope from this rapid, and necessarily imperfect, sketch I have endeavoured to show you how, from the simple reed pipe of Pan and the Sèbi of the Egyptians, by the successive improvements of the ages, there has been evolved that valuable and fascinating instrument we so highly prize to-day, the concert flute. I must not attempt to survey the music that has been written for the instrument.

With the exception of Messrs. Rudall Carte's silver flute, the Chinese and Mr. Finn's concert flute, all the instruments that have been shown are from my collection.

DISCUSSION.

THE CHAIRMAN.—It is an old saying that "it is an ill wind that blows no one good," and I think we have realised its truth this afternoon, since unforeseen alterations in the arrangements have resulted in our having so interesting and instructive a paper from Dr. Southgate. As the lecturer truly said, the evolution of the flute is a very wide subject, but we have had so comprehensive an epitome of its history that I venture to say we shall all leave this hall wiser and not sadder. Perhaps one of the most remarkable features in the development of all instruments is the increase in pure tone power. Whatever may have been the strength of the old Egyptian harps, the tone of the flutes, from the manner in which they were blown, must have been soft and feeble, and the difficulty in blowing them makes one think that the slaves who played before Cleopatra must on sundry occasions have had anxious moments. One of the advantages of Dr. Southgate's paper is that it has enabled us to hear Mr. Finn's illustrations. The flute is commonly accused of sameness of tone-colour, but we have had no lack of variety of timbre to-day, and I was much impressed by the beauty of tone and finished phrasing of Mr. Finn's playing. I feel sure that I shall be expressing your wishes if, in tendering a vote of thanks to Dr. Southgate for his delightful paper, I also convey to Mr. Finn your appreciation of his valuable and pleasure-giving assistance. The subject scarcely calls for discussion, but I have no doubt some of you will be able to supplement the paper, and we should greatly esteem any remarks from Mr. Welch.

Mr. C. WELCH.—I fear I have little to say beyond thanking Dr. Southgate on behalf of myself and my brother flute-players for so kindly taking an interest in our instrument.

Perhaps I might add a word on the amazingly long period through which flutes of Này type can be traced. Three or four years ago I saw two instruments of the kind—they were exhibited at Burlington House—taken from an Egyptian tomb which Mr. Garstang, who discovered it, considered to date from about 2400 B.C. They were made of reed, and, notwithstanding their immense age, so perfectly preserved that a local musician played them as they came from the tomb. Again, there is in the Ashmolean Museum at Oxford the outline of a figure of an animal playing on a musical instrument which seems to me, judging from the position, slightly sideways, in which it is held, to be intended for an end-blown flute. The figure is far earlier than the tomb just referred to, it being pronounced by Professor Flinders Petrie to have been drawn nearly seven thousand years ago. It seems likely that the instrument called by the Greeks the *Monaulos* belonged to the Này family. The *Monaulos* was popular in Egypt; its invention was ascribed to the Egyptian deity Osiris, and a name by which it was known—the *Calamus*, or reed—connects it with the Này, which signifies the reed. I am aware that M. Gevaert considers the *Monaulos* to be a kind of recorder, influenced seemingly by the circumstance that the *Monaulos* was admitted to be the sweetest of ancient, the recorder of modern, instruments. But the Này—I have heard it played by an Egyptian professional musician—is very sweet and soft. The accounts we have of the sweetness of the recorder are almost incredible. Dr. Southgate has just told us what Pepys thought of its tone; there is, however, in his Diary a still stronger passage than that to which Dr. Southgate referred. Pepys was so struck with the effect of recorders used to call up the idea of the singing of a choir of angels in one of Messenger's plays entitled "The Virgin Martyr," that he wrote:—"But that which did please me beyond anything in the whole world was the wind-music when the angel comes down, which is so sweet that it ravished me, and did wrap up my whole soul, so that I became really sick just as I have formerly been when in love with my wife." He resolved then and there "to practice wind-music," and when entering in his Diary the purchase of a recorder for the purpose writes the words Dr. Southgate has quoted. I hope Dr. Southgate will allow me to differ from him on the subject of the fastening together of two flageolets, which Pepys was taught how to do by his flute-maker, Drumbleby. The object of the contrivance was not to play two notes at the same time, as is done on the double flageolet, but to play a passage on one flageolet, and then "echo it," or repeat it, on another of a softer tone, the two being fastened together, as I think, to enable the player to change instruments without being

obliged to put down the flageolet on which he was playing in order to take up that on which the echo was made. I will not detain you by going into details—the story is rather long—but I hope to bring my views before you at a future time, not by asking you to listen to another of my dry papers, but by begging your acceptance, as members of the Musical Association, of a copy of a book I am preparing in which Pepys's connection with the flageolet is discussed.

Mr. COBBETT.—I am very anxious to know whether any manufacturers of modern flutes have attempted to obtain a *portamento* upon the instrument. I think it is one of the reasons why so few great composers have written solos for it. When you speak of perfect intonation, I think you use the term relatively. I have sometimes tried to play on the violin in unison with the flutes, but failed to get in perfect tune with them. Might we be allowed once more to hear half-a-dozen notes from one of those old flutes? Is it not possible that by constant playing the old Egyptians did succeed in getting a more powerful tone than that produced this afternoon? I think that modern makers have done wonders in the way of mechanism for facilitating the manipulation of the instrument, but I doubt if we have heard anything more beautiful this afternoon than the low notes from the Egyptian flutes, and I should like to hear them again.

Dr. MACLEAN.—Is it not possible that whistle-heads have tumbled out of these old instruments?

Mr. FINN.—Possibly, but I do not think it likely. You find instruments just like these, played in Constantinople and Cairo, at the present day.

Mr. J. H. BARBER.—I have come upon flutes in Ceylon and India, where the upper part of the tube was stopped with beeswax. The natives use a form similar to that of Egypt, but they also use the transverse flute with the holes burnt out, as was mentioned by the lecturer. These are in constant use among the natives. There are records of Ceylon anterior to the birth of Christ, in which the flute is mentioned, so some of these instruments must be of very ancient date. I am an admirer of the flute, and have played it since I was a boy. I was a pupil of Rockstro, and therefore you will excuse me for taking up your time. With regard to the piece of music that was played, I daresay it is not generally known that a concerto was written by Boehm to illustrate his flute, to show how difficult pieces can be played on it. He also wrote a fantasia on Beethoven's Waltz.

Mr. FINN.—There was one very popular piece by Rockstro, to illustrate the use of modulation. It had got about that nothing but pieces in C or F could be played on the flute, so Rockstro wrote a difficult piece running into all keys. But I think Rockstro made mistakes in some of his assertions.

Dr. SOUTHGATE.—We are told that in Ceylon wax is used. Here is one from the Soudan that has the same characteristic. Though savages and cannibals, it seems that these people had some ingenuity. They found that by making the outlet a little smaller it was easier to get the tone. Those interesting little statues from Egypt, of which Mr. Welch has spoken, I have had in my hands. They are very very much older even than he imagines. Professor Flinders Petrie told me that they came from the foundations of one of the ancient pyramids. When I asked him if they were 4,000 years old, he said, "More likely 8,000 or 10,000 years." One of them has a pipe which is undoubtedly a Nây, but the other has a double pipe. Now think of the period of time it must have taken to develop a double pipe, and you will see how ancient the single pipe must be. With regard to whistle-heads falling out, that is impossible; they are all cut out of the instrument itself. It is quite certain that absolutely perfect intonation is not possible on any instrument with fixed keys—piano, organ, or any wind instrument of this kind. But artists, by manipulating their lips a little, and using the breath in different ways, can sharpen or flatten a note a little. Probably the Egyptians got a little more tone from their instruments than Mr. Finn has got this afternoon, but I do not think much more. Nothing is easier than to make copies of these ancient instruments. You have only to make the dimensions correspond. If the length, bore, and holes are in agreement, you get the same tone and notes that were heard thousands of years ago. I am not a flute-player, and therefore cannot say anything about the *portamento*.

Mr. FINN.—Something can be done to modify the pitch by turning the instrument about in this way. But it is desirable to leave something to the artist.

Dr. SOUTHGATE.—In all instruments with fixed keys you cannot expect to get gradation between the notes. Those members who also subscribe to the *International Journal* will remember that, in a recent issue, a description and drawing was given of a wooden double-flute still in use in Bosnia. Only lately I heard in a country town a street musician playing on two ordinary tin whistles: the embouchures of both were placed in the mouth, the four fingers of either hand controlled the vent holes. Of course the compass was limited; however, it was possible to play a simple melody and add a second part. Besides the thanks already expressed to Mr. Finn, we owe thanks to Mrs. Hester Prior for so kindly undertaking the pianoforte accompaniments.
