# *A Musical Curiosity; or, An Automaton Orchestra.*

By M. Dinorben Griffith.

*(Illustrated from Photographs specially taken by George Newnes, Limited.)*

IT was a foggy morning — no need to specify any particular morning, for every morning was foggy then — when in a lift I ascended to the top floor of a lofty building situated — well, within the four-mile radius of Charing Cross.

The blood-curdling sounds of half-a-dozen stringed instruments being tuned at once guided me to my destination. I entered a large room, where I found an orchestra of eleven ladies, in full evening dress of white satin, with pearl and diamond ornaments, and hair elaborately *coiffé*, instruments in hand, grouped round an organ on which a twelfth figure (a man) was playing a dreamy prelude.

THE ORCHESTRA.

Eleven pairs of eyes—blue, grey, brown, and hazel—were fixed on me as I nervously covered the space between the door and the one chair in front of the owners of the eyes. I tried to summon up courage to stare the starers out of countenance, and to pick out the pretty ones. They were all pretty, but naturally one has predilections for lovely, demure-looking, golden-haired blondes, or stately brunettes with dark tresses, or for sparkling beauties, wickedly bewitching, with Titian-hued hair. Samples of each type were before me. I hesitated and was lost, and, to save making an invidious selection, fell in love with the whole eleven.

The prelude ended with a loud chord. The lady seated straight before me jumped up, bowed smilingly, then unceremoniously turned her back to me and lifted up her *bâton*. To my great chagrin the ten pairs of eyes were then fixed on her, and the concert began with the "American Patrol." It was given with wonderful precision and brilliancy. The conductress again faced me, bowed, and sat down.

A voice from the organ announced that "Miss Blow would give a solo on the piccolo," and the lady mentioned struggled to her feet — I say struggled, but truth compels me to state she wobbled about in a strange fashion. "Ah, the cold," I thought, "or perhaps she has breakfasted, not wisely, but too well." I smiled sympathetically at her, but was frozen by a stony glare, after which I sat shamedly listening to one of the finest solos I ever heard played, and felt bound to confess that whatever had affected the limbs had left the head and fingers in first-class condition, so I named the complaint chilblains and tight shoes.

The orchestra then played "Pastimes on the Mississippi," which gave scope to the talent of the metalophone player, who acquitted herself with wonderful skill.

DR. BRUCE MILLER AND THE CONDUCTRESS.

I clapped vigorously to express my delight and also to warm my hands, and then with some diffidence and downcast eyes threaded my way among the ladies until I reached the organist.

"Dr. Bruce Miller, is it not?" I asked.

"So. What do think of my orchestra? We are *en route* for the Paris Exhibition, you know. It's a first-rate show to travel with. You bet there are never any rows in my company, and no single member has ever grumbled or struck for higher salary. That's good enough, isn't it? And all women, too —stranger still, eh?

"To bring this orchestra up to its present state of perfection," added Dr. Miller, "has taken ten years of my life, and I am still going on improving it. I shall very shortly dispense with the organ altogether, and have a piano with a harp attachment."

I had just realized that the eleven ladies were ruled by one mind and one brain, and those belonged to the man who was their creator and manager.

I had been listening to a musical curiosity —an automaton orchestra, but so cleverly manipulated and so artistically built, that at a distance and under artificial light they would deceive anyone.

The construction of automata has been a craze among mechanicians from time immemorial. The priests of Memphis kept up the prestige of their sacred city and its religious rites through their mechanical skill in this special line. Four hundred years B.C. there was the famous wooden flying pigeon of Sarentum, and centuries later came the historic eagle which flew before the Emperor Maximilian when he entered Nuremberg. Probably the best known of these automata was Kempelen's famous chess-player, which for many years puzzled Europe. It was hardly deserving of the name of automaton, for a man was cleverly concealed inside the figure. The Swiss excel in constructing automatic singing and flying birds, but their productions can hardly be termed more than clever toys.

Mechanism has now attained such perfection that a mother can present her daughter with a doll which will walk, sing hymns, nursery rhymes, or lullabies in the mother's own voice. So cleverly are animals imitated, that even an experienced old tabby cat was grievously deceived. Seeing a mouse leisurely meandering round the room, she swallowed it. Alas, it was only a toy mouse, and whenever that cat moved there was a rumble of machinery inside her. She was a living alarm clock, avoided by all her kind, and the laughing-stock of mice. History records that she died mad.

Most automata are constructed on the winding-up principle; the orchestra men-

THE CLARIONET PLAYER.

tioned is manipulated in a much more intricate but more natural manner.

Doctor Bruce Miller, its inventor, is a Chicago physician, who in his early youth was a musical enthusiast. He devoted his whole energies to the study of this branch of art, and also to the practical constructive part, with such an absorbing interest and devotion that his brain threatened to give way. His father forbade any further pursuit of his hobby, and insisted on his entering the College of Physicians and Surgeons as a student. He graduated, and successfully followed his profession for three years, although his heart was not in his work. Gradually he returned to his first love, music, not as a student or performer, but as an inventor.

THE FLUTE-PLAYER.

His first attempt at automata construction was eight grotesque figures that sang and played their own accompaniments. The second was the present Pneumatic Orchestra of eleven life-size figures, which cost the Doctor ten years of constant labour, and before it had reached its present state of perfection over £3,000 had been expended in experimenting.

The operating instrument is a console, and Dr. Miller, seated before the finger-boards, foot-pedals, stops, etc., directs all the movements of the figures. The instruments played are violin, clarionet, piccolo, flute, trombone, metalophone, bass viol, cymbals, triangle, bass and snare drum. Every figure, as it was completed, was connected with the console by pneumatic tubings.

The figures are made of *papier-maché*, as wax did not look natural, and the inventor himself constructed every one, painted the faces, and completed the mechanism which moves the heads, arms, and eyes of the figures. Some idea of the magnitude of the work may be gathered from the fact that over a mile and a half of rubber tubing is used, in addition to brass and tin tubes, 3,000 bellows, and 6,500 valves.

"The instruments," said Dr. Miller, in reply to a question, "cost about £150, but it costs ten times as much to make those instruments play."

The marvellous part of this automaton or Pneumatic Orchestra is, that the figures move, the eyes turn, the fingers are flexible, and actually play the right notes on flute, piccolo, or clarionet. They stand up and sit down, and play solos with an accuracy and light and shade which have hitherto been impossible except to a living soloist.

Naturally the excellence of the programme depends upon the talent of the operator and his musical repertoire and skill. If he is a genius, then his musicians are immediately filled with the divine afflatus also. This is literally true, for the operator has only to open the proper valves, and the figures do the rest.

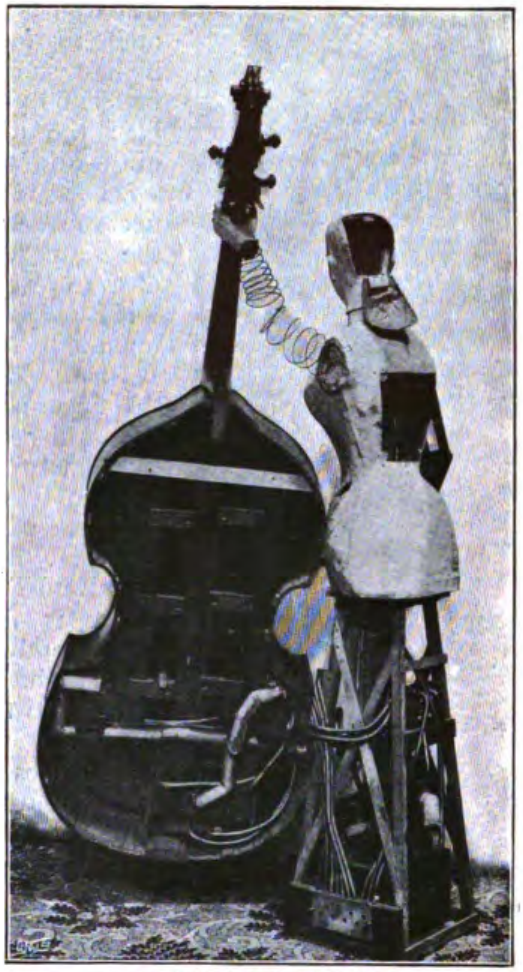
THE PERFORMER ON THE KETTLE-DRUM.

The leader of such an orchestra has to be a thorough musician himself; he must know the whole orchestration of a piece, and commit every one to memory, for to manipulate correctly the tubes connecting each and every figure requires long, arduous, and constant practice.

The orchestra occupies a space of 25ft. in length, is 12ft. wide, 12½ft. in height, and weighs 3,500lb.

The Doctor, seated at the console with his

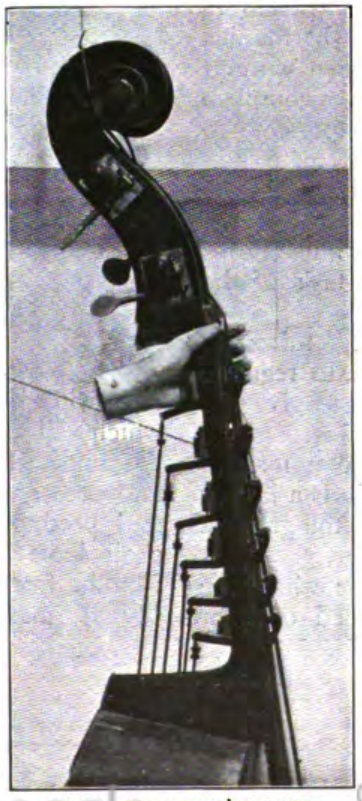
THE VIOLINIST, AS SHE REALLY IS.



THE 'CELLO AND ITS PLAYER.

orchestra round him, begins the overture, at the conclusion of which the conductress starts leading the band. At will the musician at the organ can bring a soloist to her feet, who faultlessly plays her piece, bows, and sits down again. The marvel of it all is that the inventor, among his multitudinous tubes, can recollect what tubes move any particular figure, for tubes surround him, in hanks, in bunches, until the floor round him is covered and seems to teem with snakes, which they resemble.

As the whole manipulation is performed by one man, and he an accomplished musician, there is no difficulty in getting the proper expression into the music,



THE HAND OF THE 'CELLOIST.

which is an impossibility in a mere wound-up automaton.

The metalophone player, Dr. Miller informed me, was the most complicated. The figure contains fifty bellows, and seventy-five more are required in connections before the soloist can play her part thoroughly.

Questioned as to the motive-power, Dr. Miller pointed to twelve tanks containing about 600lb. of water. "You see," he said, "this is better than lead for weight. I can empty the tanks for transport, and that means something, as I paid for fifteen tons of luggage by measurement coming over from America."

"Will not your invention injure professional players?"

"Not at all, when I have

THE CONDUCTRESS.

brought my orchestra to the highest state of perfection possible; the musician-operator will still be necessary, and the excellence of the orchestra will depend upon his ability."

In addition to the finger-board Dr. Miller operates on twenty-six pedals with his feet; a harmonica, by a contrivance of wires, is fixed conveniently to his mouth, and this again is connected with the figures by tubes; every tube in the harmonica produces two notes by the simple process of blowing and suction. The Doctor is the champion harmonica player of the United States, hence without seeming difficulty he is able to accomplish a musical feat that would be impossible to anyone else.

A glance at the mechanism of the figures and the interior of the instruments, with their connecting tubes—as given in our illustrations—will show how difficult is the task of the operator.

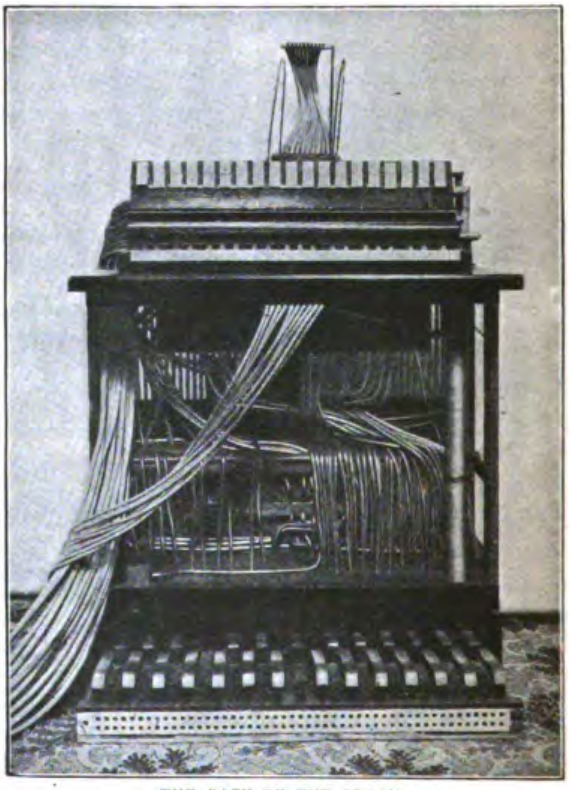
To remember the order of the tubes, to play with hands, feet, and mouth, to regulate the movement of the figures, and to give the necessary expression to the music seems to be a task beyond the power of one man to accomplish, but to Dr. Miller it is a labour of love, and one he performs with the greatest ease.

It was a transformation scene when the pretty ladies were ruthlessly robbed of their wigs and garments to show their interior mechanism. Through a trap-door at the back of the head, and another larger one in the body, I saw the minute bellows, with their double action, the marvellous springs, and the thousand and one devices that converted the *papier-maché* doll into an accomplished soloist. The orchestra is certain to be an attractive and much-patronized feature of the Paris Exhibition.

"The ladies are all to have new dresses for that occasion," said the Doctor. "I am busy designing a novel costume for them."

"Why not have them in Jap dress?" I suggested.

"That would not be a bad idea," was the reply. "I am now adding a piano of concert



THE BACK OF THE ORGAN.

size, with harp and mandoline attachments, which will be operated from my finger-board in connection with the figures. This will add greatly to the volume of the orchestra and produce a number of new effects. I shall have this completed by the 1st of March, from which date we start a series of performances in London."