

The Travelling Entertainers – their lives and customs

Gaston Escudier

With 500 ink drawings by P. de Crauzat

Paris, 1875

Now the poor man is dead. He lies in peace; may God rest his soul. The siege¹ has killed him, like so many others, and he was found unconscious in his simple dwelling in Rue Saint-Antoine², worn out by privations of all kinds, stiffened by the cold, in the midst of his precious instruments - his electrical machine, and his batteries. So far as I know, no successor has yet been found. That's because it's not within the capability of the first person who turns up to demonstrate science - real science - for a couple of sous³, but he ... he was doing it.

This will be his funeral tribute, and all those who have known him, all those who have paused in the middle of the onlookers in front of his demonstrations, as he said, will see that I have scrupulously studied this character and that I capture his essential nature truthfully, his ways and customs, the patter of this renegade from science, who is known as an “experimenter in physics”.

He was called Eustache-Amour Hublin, and was born in a little village near Rouen in Normandy. He was the son of the parish beadle; the local priest took him under his wing and gave him some early lessons in Latin and Greek. But his instruction wasn't taken much further. Of the rest he grasped little, as you might say, of the beauties of the Greek and Latin languages, and the position of his family didn't allow him to become a scholar. Education is so expensive, and as old Bilboquet⁴ has said, you don't get much for two sous.

At the age of 22 he found work as an assistant in a theological college, and was assigned to work in the physics classroom. Naturally, he attended the lectures, and profited like the other students from the teacher's demonstrations. It was there that he gained his first ideas about science, ideas that later helped him to earn his living. He remained in this post for ten years, and left it to go to a college in the South as a lab technician, a job which the students called ‘the apprentice’. There he was responsible for cleaning the equipment, and organising it for the teaching - in a word, making available everything that the teacher required for a lesson. Intelligent, but not wilful, conscientious so long as he did not have too much work, with a naturally calm and pleasant character, Eustache stayed in this post for 12 years. He learned to operate the physics instruments, taught himself the laws which regulate the behaviour of bodies; he knew, in a word, without being a scholar, what he had learned, especially from the experimental point of view.

¹ The siege of Paris at the conclusion of the Franco-Prussian War in 1870-71.

² This street is in the once poor Marais district of Paris (“marais” = marsh)

³ A sou was a ‘centime’, the 100th part of one franc.

⁴ Bilboquet is a child's game with cup and ball, but ‘old Bilboquet’ is presumably some kind of elderly commentator on life.

We lose sight of Eustache for ten years; he found himself a job in a dyestuffs factory near Paris, and we come across him again on a fine day at the St Cloud festival⁵, in the middle of clowns, a performer himself, surrounded by various pieces of electrical equipment, attracting onlookers and showing them the strangest phenomena from that part of physics which is called 'electricity'.

Hublin is now 54; he is short, the top of his head is almost entirely devoid of hair, his beard is long, his face is kindly. His rough clothes are clean, he brushes them carefully; this - as he said - is because he doesn't want to look like a circus performer. On a low table he has set up his rotating machine, from which he will strike lightning in an instant; he has neatly laid out two batteries, a Cartesian diver, a pulse indicator⁶, a machine for imitating a hailstorm, a Leyden jar, a discharging rod, a cat skin, a Volta's pistol⁷ and a twin-tubed vessel in which he is going to generate hydrogen⁸. Everything is clean and shiny. The machine and the associated items are at the centre of a circle of curious spectators; and a rope strung between some iron posts prevents the crowd from pushing through and touching his demonstration apparatus.

Here he is, rolling up his sleeves; he is going to speak; let's listen to him: "Gentlemen, here I am, the physics experimentalist; I am a scientist, and if I present myself to you in this capacity it is because everyone draws from science, from my demonstrations, the true and natural principles of the forces which are greater than we are, forces which frighten the ignorant, but which show the informed observer all the intellectual satisfaction to be gained from this knowledge. I deserved to find work in the palace of princes, teaching the children of the aristocracy what science is all about; but my ambition has been greater than this; I have wanted to address myself to you, because it is a duty, a priesthood, for the strong man to make his equals strong as well. What's more, since the day I came to spread the benefits of science among you I have been known as the people's physicist of France, and I am very proud of that.

I could have gone to an Academy, to the Sorbonne, to the College de France, to give a spectacular series of lectures! No, I have refused all offers, and I have hastened here to you.

As for the rest, what use are words? I am not a charlatan, I am a man of science, and all of you know my high reputation and my knowledge. My only request will be this: if you are satisfied with my work, put in this box something that will buy you other items of equipment; because it is for *you* that I purchase them, and a contribution to keep them in good repair. Scientists are poor; but we, the rest of us, are we not lovers of science?

⁵ St Cloud is just outside of Paris

⁶ A 'bat pouls' is literally a 'beat pulse'. It's a device explained in the Appendix.

⁷ This is a metal tube, closed at one end and with a stopper in the other, mounted in a pistol grip. It is used for exploding hydrogen/oxygen mixtures. See Appendix for more detail on this and the other instruments mentioned in this paragraph. Animal fur, such as cat skin, was used for creating an electrostatic charge, eg by rubbing it on a glass rod.

⁸ This is likely to be a 'eudiometer' – see Appendix

You will see that a demonstration-lecturer doesn't try to exaggerate. He says what he thinks; he believes himself the equal of Volta, Arago, Ganot⁹. He really pursues science, just for the love of it. There are times that he goes to bed without supper."

After this little homily, he starts his presentation.

The Cartesian Diver descends and comes back up again at his command; he explains that it is the air that he compresses which drives this miracle. He shows how a Bunsen battery¹⁰ is charged, explains the reactions which take place and turns on a little Ruhmkorff machine¹¹, which creates a lightning spark; he connects the wires from the battery to an electro-medical machine, and, for ten centimes he switches it on. But the audience is quite small, and he continues his demonstrations with the dance of the Divers. Then he charges his Volta pistols, puts them in contact with his machine which a boy is turning, and makes them fire, to the great astonishment of the onlookers. Those who understand nothing of it persist in believing, despite his eloquent words, that the apparatus contains a capsule of gunpowder, and that a button, acting as a release, communicates the spark to the instrument. Finally, he finishes his programme with this great demonstration of thunder. Yes, gentlemen, I master it, the thunder, I put it in a bottle, and, at my will, it explodes.

The show is over ; he moves around the audience, holding out a wooden bowl ; but receipts are small ; a few small coins fall into the purse of the poor scientist and he is going to take his fine machine, his demonstration equipment and his knowledge elsewhere. Anxious to please, philosophical by necessity, Hublin easily persuades himself that he is deserving of a more elevated status, he the man of science ; driven to struggle amongst the jugglers and conjurors, to open up his box of physics equipment to the rain and the dust, to be the Gay-Lussac¹² of the cross roads, as Emile de la Bedolliere¹³ called him, and to show off electricity for a couple of sous !

Poor Hublin ! The top of his head is completely bare, his beard is now white, his clothes are ragged, his machine and the equipment are dented and damaged.

He had not seen these changes take place without deep sadness. He sought help from his roots, but his old parents were no longer of this world ; the priest had handed his soul over to God, and he had not even

⁹ Alessandro Volta, 1745-1827, pioneer of electricity; François Arago, 1786-1853, mathematician and physicist; Adolphe Ganot, 1804-1887, writer on experimental physics.

¹⁰ The Bunsen cell, invented in 1843, was the first battery to use a carbon electrode

¹¹ This was an early form of induction coil, patented in 1851

¹² Louis Joseph Gay-Lussac, 1778-1850, physical chemist

¹³ Emile de la Bedolliere, 1812-1843, writer and journalist

received an answer to his letter. It is in this state that the siege [of Paris] found him. He could not resist the thousand privations to which he had to submit ; his head itself was enfeebled, and it was in his garret that he breathed his last, asleep on the floor, without a fire, probably having eaten nothing for several days. A tragic death !

And to say that all French people are equal ! One day I asked Hublin how he had come to perform in the public squares and to spread his knowledge before the idlers for so little return.

« Ah, sir, he replied, I see that you understand my position and that you have looked into my heart. What struggles, what combats ! How I have blushed, how ashamed I have been of the day when I lowered myself to the role of a conjuror. But one has to live, and what can one do ? Hunger drives you to many things.

On leaving the dyer's I arranged my affairs so that I could buy this machine and these pieces of equipment. I was promised the job of tutor to a family; but I don't know how, that happy situation did not arise, and I was forced to change my plans . I wanted to find a job, and after a month of searching, seeing that I had found nothing, and that the last sou was going to rejoin its comrades, I came, armed with a permit from the police, to set myself up in the Champs Elysées. But I didn't earn very much and I had to follow the street fairs and rub shoulders with the jugglers and mountebanks. Ah, Monsieur, my heart bleeds at the thought that here am I in the midst of the fairground.

You asked me to let you know about my life, I have told you about it down to the smallest detail. I have only one favour to ask of you, as you have promised me that one day you will write my biography”.

What's that?

“To explain what necessity pushed me to descend so low, and to say quite clearly that it is in spite of myself, that it was so as not to die of hunger that I became a showman.” Poor Hublin! He did not realise quite what he was saying; he didn't know that death would seize him so quickly; for it was one year before the war¹⁴ that he spoke to me in this way.

Several people have said to me that it was essentially his fault that he ended up so miserably, and that if he had remained a simple farmer, without wanting to play at being a scholar, he would now have some relaxation and would probably still be alive. That's as maybe. But can one ever reproach a man for wanting to raise himself above the crowd ?

¹⁴ The Franco-Prussian War began in 1870.

Hublin is dead, and no-one has even put a simple wooden cross on his tomb, to remind everybody that the remains of the poor scientist are sleeping there, tranquil in this modest corner of earth.

He deserves at least an epitaph : Here lies Eustache-Amour Hublin, a martyr to science !

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Appendix – Hublin’s scientific equipment

Some of this can only be speculative, but from the list of items given here it is possible to draw some tentative conclusions.

Bat Pouls

Literally a “beating pulse”, this was a glass tube as shown below, which when suitably manipulated would produce small bubbles in time with the pulse of the person holding it. It’s hard to believe that this worked very reliably, or could be made readily visible to an audience.

387. Bat-pouls (fig. 327)..... 2 fr. 50

Cet appareil ressemble au précédent. C’est aussi un tube à deux boules contenant de l’alcool coloré, et dont on a chassé l’air en faisant bouillir l’alcool;



Fig. 327.

seulement ce tube, au lieu d’être coudé, est droit. On l’incline légèrement, de telle sorte que le liquide forme, dans la boule *b* et dans le tube, une même nappe séparée en deux par l’étranglement de la boule, et laissant à la partie supérieure de celle-ci un petit espace vide. On prend la seconde boule dans la main; il se forme de la vapeur qui passe, bulle par bulle, de la boule dans le tube, à chaque secousse que le battement du pouls imprime à l’appareil; en sorte que les pulsations peuvent être comptées par chaque bulle de vapeur qui s’échappe.

This apparatus resembles the previous one. It is also a tube with two bulbs containing coloured alcohol, and from which one has had the air evacuated so that the alcohol can be made to boil (through the warmth of the hand), except that this tube, instead of being bent is straight. You tilt it slightly, so that liquid collects in bulb B and in the tube, the same reservoir of liquid being separated in two by the constriction of the bulb, and leaving a small empty space in the upper bulb. You take the second bulb in your hand; it turns the liquid to a vapour which passes, bubble by bubble, from the bulb into the tube, in time with the beating of your pulse against the apparatus; so your pulse rate can be counted by each bubble of vapour which escapes.

Pistolet de Volta ... Volta's pistol

This was simply a tube in which a mixture of hydrogen and oxygen could be detonated. It was mounted on a wooden stock to resemble a pistol.

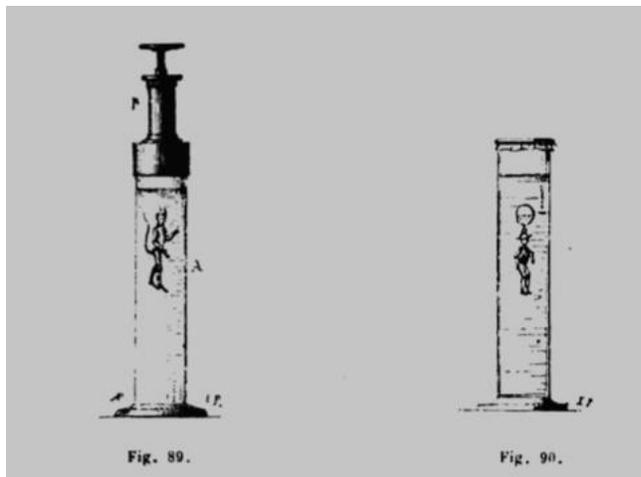
The brass tube is closed at one end and has a cork stopper inserted in the other. It is filled with a hydrogen/oxygen mixture and detonated with a spark from a Leyden jar.

Bouteille de Leyde, Excitateur ... Leyden Jar and Discharging rod

The Leyden jar was an early form of capacitor. Pieter van Musschenbroek, from the Dutch town of Leiden, was its inventor.

Pantin du Ludion ... Cartesian diver

This is a doll with its head (and/or possibly the body) made from a small balloon. Its buoyancy is just enough to keep it floating in the sealed jar. If pressure is applied externally – either by the piston (on the left) or the rubber membrane (on the right) the volume of the balloon reduces and the diver sinks. Remove the source of the pressure and the diver rises once more.



Machine a roue – a machine with a wheel for generating an electrostatic charge

He could not have had a Wimshurst machine, now the best-known device of this kind, as this was not invented until the 1880s.

Un appareil pour imiter la grêle – a machine for imitating a hailstorm

My first thought was that this must be an apparatus for making 'imitation hailstones', but I can find no reference to such a machine. Then I discovered that the Great Organ in the Paris church of Saint Sulpice has an organ stop called « machine à grêle ». You can hear a clip of this being played on YouTube, and it's a sheet of canvas, treated in some way that makes it sound like a hailstorm when a rotating drum is turned beneath it. This makes it very like the 'rain machine' used for stage effects, and perhaps Hublin used it to draw a crowd to his presentation.

Even more strangely, this piece of equipment, along with others used by Hublin, appears in a list of demonstration equipment prescribed for use in 'public instruction' (ie in schools/colleges) published by the Minister of Ecclesiastical Affairs and Public Instruction in 1824 :

Balance de Coulomb.	100
Tabouret électrique, excitateurs et divers menus objets pour le développement de l'électricité, sa distribution, son partage (Pixii).	100
Électroscope de Volta (Pixii).	10
Bouteille électromètre de Lanne.	30
Machine électrique (Pixii).	500
Deux cylindres pour l'électricité par influence (Pixii).	80
Plusieurs sphères de différens diamètres.	100
Condensateur pour l'expérience de Richmann (Pixii).	60
Bouteille de Leyde et batteries (Pixii).	100
Thermomètre de Kimerfley (Pixii).	20
Eudiomètre (Pixii).	25
Appareil pour l'électricité dans le vide (Pixii).	25
Appareil pour imiter la grêle (Pixii).	25
Électrophore (Pixii).	40
Tourmalines et autres cristaux électriques par la chaleur.	50
Condensateur pour le développement par le contact (Gemby). ..	120
Pièces de différens métaux pour le développement par le contact (Pixii).	30
Pile à auge d'après le principe de Vollaſton.	50
Pile à colonne (Pixii).	80
Appareil pour la décomposition (Pixii).	12
Condensateur ordinaire (Pixii).	25
Pistolet de Volta (Pixii).	3



The reference in this list to Pixii is to the Parisian instrument maker Hippolyte Pixii (1808-1835) who seems to have devised a remarkable number of pieces of demonstration equipment during his short life.