

ISHKUR'S ELECTRONIC MUSIC TUTORIAL

So where did it all begin? How did it all start? Who was the first guy who said "Holy shit, this buzzing, spitting, throbbing, pulsing din of an inane sequence of noises that might arguably call itself music sounds totally awesome on ecstasy!" And what made him do that?

But maybe I'm getting ahead of myself. To try and pinpoint the exact origins of electronic music, you first have to look at how it's made. Because as amazing as it sounds, electronic instruments did not always exist. The vast majority of them are barely more than 20 years old. And it's not like you can just pick up a sampler, synth and drum machine and jam away. Unlike conventional music, electronic music isn't played, per se. It is PROGRAMMED. So any study of the history of electronic music is really a study of its programmers--that is, the people who make the machines that make the sounds that make the music what it is. Without some guy tinkering with diodes and transistors, electronic music is just a fancy, lifeless hunk of junk. Just sitting there. Not doing anything.

Because of this, more than any other music medium, electronic music thrives on technology to make it what it is. And moreover, to make it better and different than what it was. Other instruments have remained largely unchanged since their original design centuries ago, but electronic music is constantly evolving and changing its sound with the application of technology. A new oscillation, patch or filter could take it in an entirely new direction. It is the one form of music where the equipment manufacturers have probably a greater control over the final musical output than the artists. Acid wasn't invented by a musician, it was invented by Tadao Kikumoto, creator of the Roland TB-303 Bassline. Without the 303, there is no acid. Without Kikumoto's fucked up design schematic, there is no 303. Up until recently, electronic musicians were practically at the mercy of the designers who programmed the sounds into the machines. In a way, the instruments don't make the music, the instruments ARE the music. It's a very Macluhanesque way of looking at things, I know, but trust me: It all makes sense.

So what was the first technological apparatus that kicked things off, then? Well, to answer that question, we have to go all the way back to.....

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1982 was when it all began. Yes, 1982 was the pivotal year that electronic music crashed into prominence. Nothing happened earlier than that. And it was all due to the creation of a single, ingenious invention, one of the most celebrated collaborations of collaborators in the standards-fractured world of electronic equipment: MIDI.

It stands for Musical Instrument Digital Interface. It's pronounced "middy". At least, that's what I've always called it. It is both a language and an operating system, a protocol and a standard all in one. It could even feed the dog and put the kids to bed. What it is NOT, as dumb computer users have come to think of thanks to stupid Geocities pages, is an audio format. It is not a cheap, tinny, low size form of audio like MP3 or WAV, you idiots. Those .mids you see aren't actual music. They just contain instructions of what kind of notes a MIDI-enabled device (like most computer soundcards have a crude version of--yes, that 8-bit noise you hear) should play and how to play them. I'm going to say this again: MIDI IS NOT AUDIO, dummies. It is like sheet music. For computers. It tells computers how to play music. And it was around long before annoying famewhores ever thought of embedding it in their obnoxious, head-decapitating webpages.

MIDI was a revolution in electronics manufacturing. It was a landmark idea during an age where standards were fragmenting and computer companies were coming out with different languages, protocols, applications and operating systems every day. All the electronic music equipment manufacturers--or at least all the important ones, anyway--decided to put an end to all the compatibility issues by coming together and hammering out a single, solid, ever-dependable universal standard protocol. Once and for all. Under this standard, it didn't matter if your drum machine was from Roland and your keyboard was from Yamaha and your effects processor was from Akai. MIDI made them work together, talk to one another, get the band back together and not be so pissed off that the lead singer ran off with their girlfriend.

MIDI ushered in an age of uber compatibility across the board. Everything, from samplers, sequencers, software, synths and effects processors could simply be hooked up to one another via two simple to attach cables (one to send data, one to receive it), and work together flawlessly, with little to no hassle, turning the electronic musician into an orchestra. But the best part was what they did next: they released the MIDI spec into the public domain, liberated it from proprietorship, thereby allowing every piece of equipment made afterward to adhere to its standard. This would be like if Microsoft made Windows free and public, and EVERY PROGRAM EVER MADE, past, present and future, for Mac, Unix, or even Amiga, Wang or Commodore 64, would work under it. Without fail. Damn. That would make computers so much more awesomer.

MIDI also allowed one other important thing to happen: continuous music in video games. Before MIDI, injecting sounds into video games was often difficult and expensive. Audio was notoriously large to inscribe digitally, and early cartridge systems like Atari and Intellivision barely had the room to squeeze much more than a few blips and bleeps into their games. With MIDI came a much more compact way to shove sound effects and music onto the games. Because remember: MIDI is not audio. It is simply a series of text instructions. And text, as we all know, is far smaller than media. So when the new generation of Nintendos and Genesis' came around, they had MIDI soundbanks hard-coded into their consoles, all the carts had to carry were instructions of what music to play and how to play it. And there you go--streaming Super Mario Bros. music for a fraction of the size. What a brilliant idea, eh?

So now you understand why the electronic music industry will always triumph over the computer industry, because the computer industry is dumb. And it all started in 1982, with the creation of MIDI, that allowed electronic instruments to hook up with one another, and finally free themselves from the bonds of you filthy humans.

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Wait. Scratch that last bit. 1970! Yes, 1970 was the year everything started! That was the year Bob Moog--the eminent electronic music equipment manufacturer at the time--teamed up with Dr. Evil to create the Minimoog, a synthesizer that was every much as awesome as his original Moog Modular....only one-tenth its size.

This was important. Like all things electronic, everything tends to start out really fucking big, and then get smaller as time goes on. Moog had been making synthesizers since 1961, the only problem was barely any of them could fit inside a room. Therefore, the only people who had access to them were bigwig recording studios and people with lots of money but little to no musical talent. Or transexuals. And don't even get me started on the learning curve, which consisted of studying the original design schematics to figure out how to turn the things on (only to learn that they required 1.21 gigawatts of electricity). When they actually managed to produce a note on key--which wasn't often--they usually blew out 30 vacuum tubes in the process, and then everyone had to evacuate the room, because the smoke was toxic.

The Minimoog changed all that. It was small. You could carry it through a doorway. You might even take it on the road, which is why Pink Floyd didn't start becoming a listenable live band until they could take their studio sound effects gizmos on tour with them.

But most importantly, it led to a revolution in electronic equipment manufacturing that was paramount in making electronic music accessible to a whole class of people who wouldn't otherwise be exposed to it. I'm talking, of course, about black people. And this is really important in electronic music's development, because up until now the genre had been completely dominated by white people. And not just white people, but the squarest of the white people. White people who were even too white for white people. Mostly scientists, mathematicians and Parisian experimentalists. People so stuffy, pretentious and intellectual, for them getting down and boogeying was picking a nickle up off the street.

This sounds like a broken record, but once again the brother saves humanity from turning into a race of boring dunces. While Italian futurists and musique concrete tards were busy patting themselves on the back about how insipidly genius they thought their cat-strangling atonal compositions were, jazz and soul musicians picked up the Minimoog and immediately found its raw edginess to be something quaint and funky. The low-fi sounds of these quirky analog boxes led to one of the most endearing electronic samples of all time, courtesy of the Ohio Player's Club: The Funky Worm. From there came Herbie Hancock and George Clinton, always game for futurism, but not futurism the way the french and italians envisioned through stiff intellectualism and mathematic precision, but rather a weird, warped future full of funky freedom, camp sci-fi themes, and operatic space sets featuring an alien mothership descending upon the world to drop DA BOMB on y'all. Oh yeah. Make mine the P-funk.

From here, things would only get better, and by better I mean blacker. There are lots of great exceptions, but generally white people just suck at making electronic music.

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1955!! I forgot about 1955. Now, 1955 was the year of electronic music's genesis. I mean it. For real. Forget everything I said before. To find out where electronic music came from, you need to go all the way back to the year 1955, for that was the year that RCA commissioned Harry Olsen and Herbert Belar to come up with something wacky and wild to do with the burgeoning electronics industry (something that had stalled in technological development since the 30s until space aliens crashed in Roswell in 1947 and the government absorbed their technology, which led to rapid advancements in science like plastics, neon, transistors, and Dick Clark), to which they did. They came out with

something they called the RCA Mark II Synthesizer (there was previously a Mark I, but it was a stupid thing that no one used and no one remembers having existed. Kind of like Streetfighter 1).

That was the first time anyone had ever used that word for a piece of musical equipment. Synthesizer. They called it that because it was the first musical instrument that was meant to emulate or "synthesize" musical sounds. Also, they called it that because Synthesizer just sounds so awesome and futuristic, like a favourite delicacy enjoyed by robots in the year 2340.

This was an incredible feat. Before then, if you wanted a piano sound, you had to actually get a piano. If you wanted to hear a trumpet or a drum, you had to hire a trumpeter or a drummer. The concept of virtualizing music through artificial means just blew people away. It wouldn't take long before Synthesizers started becoming self-aware and roaming through the streets of LA looking for Sarah Connor. Eventually, they just said "fuck this shit", stopped reproducing existing sounds and started making their own, in ways and manners that no existing musical instrument was capable of doing. Like the sawtooth waveform. Mmmmmmm.....sawtooth.

There were some problems though. For one, the thing was the size of a bus, and secondly, in order to program notes into it you had to use punch cards, reel-to-reel tape decks, ludicrous speed, masking tape, Unix v0.1 in Assembler and four different forms of karate to get it to belch out anything. And when it did, it was hardly music. More like an annoying whine. Still, what it proposed was promising. It just wasn't useful for anything yet. But hey....even Superman was only capable of lifting a car when he was a kid.

But it did do one thing really cool: it allowed you to make your own music as you composed it. It was an analogue, real-time beast that took four men to operate, but everything was real and instant. Serious music composers had never done anything like that before. It's unfortunate that the only people who got to fiddle around with it were boring stiffs who like to take all the fun out of music.

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Hold on a sec! Since we're looking for the REAL origin of electronic music, it only makes sense that we go to the source--the guy who actually coined the term "electronic music". And for that we have to go back to 1949, where Werner Meyer Eppler wrote one of the most earth-shattering essays in 20th century music: "Electronic Tone Generation, Electronic Music and Synthetic Speech", outlining the freaky future that popular music was about to undertake as a terrifying warning to all mankind.

Speaking of which, allow me to go on a bit of an aside here: What was with all these brilliant eggheads in the 40s foretelling the future with such grim accuracy? Maybe they were tipped off by the Roswell aliens or maybe--due to the fact that just a few years earlier they had figured out how to blow the planet to kingdom come and were feeling awfully proud of themselves for it--they wanted to do something that would REALLY fuck us up (like nuclear bombs didn't impress us enough. No, really guys. What, were people saying "Pshaw, Any eight year old can slam plutonium particles together and release a biblical amount of energy. Try again, fuckheads." What more did they want, rocket cars and an atmosphere on the moon?).

Anyways, it's pretty strange to see a whole bunch of post-war visionaries--some scientists, most not--accurately predicting future living, complete with technological advancements and all. You got George Orwell, who wrote "Politics and the English Language", detailing the perils of political correctness 50 years before it was canonized. And you got Vannevar Bush, who wrote "As We May Think", which foretold hypertext, miniature cameras and the rise of the internet. Yeah, this guy fucking predicted the motherfucking internet at a time when there were only six computers in the entire world, and four of them only knew how to decode secret Nazi messages, store recipes, and decode secret Nazi recipes and store them. There was also Aldous Huxley, who warned about the "assembly line-ation" of life, harbinging the era of suburbanization and consumerism. A society of Nostradamus', I swear. Why aren't there people like this today? Where are today's visionaries? Was the war generation simply smarter than us? They were certainly better at killing one another.

Anyways, Eppler took his ideas to Bell labs, and came out with what he called a synthetic speech encoder...or a Vocoder for short. And then he went on tour talking about his amazing ideas about this new thing called "electronic music", because everything at this stage was simply theoretical. Like the guys above, nothing they talked about was technically doable yet. But it would be, if they sat around long enough, shut their eyes tight and put their fingers to their temples, and willed it to happen.

So there you go. Werner Meyer Eppler. The founder of electronic music.

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Actually, that's all wrong. What am I thinking, electronic music didn't start in the 1940s. Stupid me. It started in the 1920s! Yeah. 1929, specifically, is when the first actual keyboard synthesizer was built by Edouard Coupleux and Armand Givelet, only they didn't call it a keyboard synthesizer, they called it the "Givelet Electric Organ", because it didn't have any preset samplebanks or patches or ADSR envelopes or noisegates. But it did have oscillation! Though the oscillation was controlled by paper rolls, like those automatic piano players that have been around since the 1800s, only these paper rolls could control more than just notes. They instructed electronic circuits to control pitch, tone, colour, loudness, and even note articulation. It was a breakthrough in organ technology.

This might have gone down as the most important electronic instrument of all time, except for one thing: four years later, a non-descript company called Hammond, working on a similar premise, released their own electric organ, and the rest is organic history, hahaha. Sorry, bad joke.

By the 60s, Hammond had advanced their product into the B-3, also known as the greatest organ ever made. The skill, quality, competence, and craftsmanship that went into that thing was so extraordinarily high that if Hammond ever tried to re-release the B3 today, it would run retail of somewhere around \$60,000. Ahh, but parts and labour were cheaper back then, and for a brief, blissful golden age, it was the king of the somewhat electronic music devices that could actually make decent music. Attach one to a Leslie Speaker, and you got the greatest electronic sound before there was electronic sound. It was certainly better than whatever the musique concrete guys were farting around with. Dumbasses.

Organs are all about size. The bigger the organ, the fuller the sound, the more awe-struck the illiterate church-going masses are when they enter the cathedral, striking real wrath-of-god-like fear into their feeble, mortal minds. Hehehe. But when digital technology came around, it kind of made the art of making really fucking big musical equipment rather pointless. Maximizing acoustics was replaced by the raw power of sheer amplification, and when that happened, organs ceased to have a place in this world. It was like bringing a trebuchet to a fight against a tank--it doesn't matter how good or how big you build that thing, it's not going to win.

But it started here. With the foreknowledge that electronics could improve and probably replace the boisterousness of the gigantic organs. Boy, were they ever right.

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Hold on, that wasn't when electronic music started. Go back even earlier, to 1917, when Leon Theremin, a Russian, invented a device that was so fucking weird he couldn't really name it after anything already existing or even anything futuristically existing, since it was so beyond the future, it was like in a parallel dimension. So he named it after himself: the Theremin.

What made the thingamajigger so weird to begin with? Well...for one, you didn't have to touch it to play it. It responded to your body movements, and if you wiggled your hand around in the general vicinity, it would respond accordingly, using your body as a reception receiver. Kind of like the old days when the television set required antenna to pick up signals, and you had to stand in a special spot in the room for crystal clear reception, or else the bloody thing wouldn't work. Secondly, the sound it produced was a completely analogue, real-time, high-pitched alien-like whine, like a microphone feedback squeel, and because it depended on YOU to stand still to play any notes of any discernible length, it tended to waver off a lot because, well, no one can stand completely still. So due to your erratic movements, the thing squiggled around a lot, and I mean a lot, making it sound like a garbled radio frequency dial oscillating to all hell and back. But at least it was electronic.

Because of its unpredictability, music composers couldn't really think of anything useful to do with it. The thing was unpredictable as fuck. How do you even begin to write music for a device like that? Theremin demonstrated the device to the 8th Soviet Congress, thereby allowing secret Theremin technology to fall into the hands of those diabolical communists. Of course the Americans couldn't stand to let there be a Theremin gap, so they raced furiously to find their own Theremin boxes and to frantically find SOME thing to do with them. The answer came 30 years later, in campy, B-grade, pulp sci-fi movies about Evil Things What Come From Outer Space (Klaatu barada nikto and all that), where the Theremin's utterly bizarre noise was perfect for describing the mysterious and the foreign (and the Russian).

But perhaps it's crowning achievement was when the Beach Boys insisted on using one for their 1967 #1 hit Good Vibrations, which took over one year, three different recording studios and twenty different versions of the song to complete because the blasted Theremin was so god damn inoperable. Brian Wilson, fed up with the thing's unresponsiveness, appealed to Bob Moog, telling him to build a more user-friendly one so that they could finish the stupid song already. Moog complied, and the end result is what you hear on "Best of..." Beach Boys compilations today.

They should have released the others as remixes.

So here's to the Theremin: the most frustrating musical instrument of all time, and the first entirely electronic instrument, ever.

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Okay, so that wasn't the first electronic instrument ever. But I think I got it now. The first electronic instrument was invented in 1897. For real this time. I'm sure of it. 1897 is when it all began. Nothing earlier. For it was in 1897 that a little thing (which, of course, was anything but little) called the Telharmonium was developed, by a guy named Thaddeus Cahill.

He originally called it the Dynamophone, and it took ten years for him to actually get a working model up and running to produce any sounds, but he filed the patent in 1897, back when he came up with the idea, and by that I mean back when filing a patent for your ideas was more important than actually doing anything about them.

I'm not making this up: The Telharmonium was 200 tons, the size of a hydroelectric power station, and was operated with large levels and gear shafts. It had a massive keyboard with something like 36 keys per octave. 36-key scale! Who the fuck would want to make music with a 36-key scale?! It also had gigantic rivets and pistons and valves and steam coming out of solid iron smokestacks above it. It was truly a masterpiece of steampunk engineering. Amplifiers did not exist back then, so the only way to hear whatever grinding noises it made was to hook up one of those new-fangled telephone things to it and and put the receiver next to your ear. It was like the first Walkman. A Walkman that you could actually walk inside, instead of taking it with you. They later figured out how to play it for rooms of audiences by attaching a megaphone to the telephone receiver. So the sound it made was like a really old, 8khz crappy analog phone conversation. Like someone talking into their fist. This is not ghetto. This is seriously genius stuff for the Victorian era.

In all, three Telharmoniums were made. Being the size of battleships, it took a couple years to build each one. Each one was bigger than the last, too. Everyone was obsessed with size in those days, so they had to be. The last one was finished in 1911, where it promptly hit an iceberg in the North Atlantic on its maiden concerto, taking over 1500 listeners to a watery grave.

They were going to build more, but production was halted by the first World War, and then Thaddeus' ultimate evil master plan of brainwashing the world by filling the telephone airwaves with seductive Telharmonium music, commanding the filthy peons to do his bidding, was thwarted by a much more insidious technology that filled the masses' heads with far more potent drivel: Radio. With the rise of radio and amplification technology in the 20s, the Telharmonium's purpose was rendered moot, forever resigned as the Beta of the electronic music family.

Today, no recording of what the Telharmonium must have sounded like exists, though if you want a general idea, just pick up any generalized Hammond Organ. It was built on the same principal. The last Telharmonium was sold as scrap in 1950, because no one wanted it. Not that they'd want to. Where would you find the room for such a beast, and what would you do with it after the novelty wore off? I guess donate it to some kind of electronic music Hall of Fame museum, if one exists. Does it? Shit, someone should apply for a grant for something like this. It would be awesome! I say it should go in Detroit, because.....well, who's going to argue with that? (shut up, Chicago)

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Dammit, I forgot about 1876. The year everything changed everything. 1876 was the pivotal year that not just electronic music, but electricity and electric inventions in general, would be introduced into people's lives. I've been looking at this all wrong.

1876 was important for two reasons: the first was Elisha Gray. This guy got to the meat of the matter, of what makes electronic music electronic. First, he developed an electromagnetic circuit that discharged a sound. And then, getting the thing to self-vibrate, he made the circuit produce continuous sound. Through careful manipulation using steel reeds (and magic music gnomes) he figured out how to control the tone of this sound, thereby creating the first, basic note, single tone oscillator. This was extraordinary for people who just discovered what to do with electricity a generation before. All that was needed at this point was a simple interface--attach keys to the steel reeds, and viola...the first actual instrument that produced sound entirely via electrical means. He called it the "Musical Telegraph" or "Harmonic Telegraph" or the "Electroharmonic Piano". Jesus, what's with these staunch, stupid-ass latinized Victorian names. The "Teleharmonocinematogramophone Electroacoustinoscillating Instrumentality Thing!" Hadn't any of these guys ever heard of marketing? I would've called it the "Super Space Piano of Doom". For leisurely sporting purposes of a gentlemanly kind. It would've sold much better. But where did he get the idea to make this self-vibrating

electromagnetic circuit thingy in the first place?

He had it in his back pocket for awhile, he just wasn't sure what to do with it. Originally what he was trying to do was figure out a way that, if controlled right, he could use it to make human speech itself travel electronically through a wire to somewhere miles away where someone else could hear it. Far out, eh? He called it the telephone, and he had the idea all laid out, and was all ready to head down to the patent office to claim his role as genius inventor of all time, except he was beaten--by mere hours, no doubt--by Alexander Graham Bell, who kind of beat him to the punch because Bell already had a working model up and running. His wasn't even theory.

But Bell wasn't interested in electronic music, so he sucks. Who doesn't suck, however, was Thomas Edison, who was tinkering around with those very same vibrating circuits and steel cylinders, only instead of trying to figure out how to send sound from one place to another, he figured out how to inscribe it onto a physical surface. Like a book. Only with sound. He called it the Phonograph, and it showed up a year later, in 1877.

That was something no one had ever seen (I mean heard) before. Before 1876, if you wanted to hear music, you had to hire someone to play it. Go to a concert, a live show, rock out, and all that crap. Rave your ass off. There were no downloading mp3s. There was no mixtape trading. All music was live. It was impossible to hear a recording, because the concept of recording music didn't exist. It's a good thing all the classical composers formulated a way to write their compositions on paper, because without the presence of recordable media, all that shit was gone as soon as you heard it. You couldn't play it back or save it for later.

Yet these masters of sound changed everything in 1876. After this year, it was possible to record, play back, stop, move, shift, transport, edit, and manipulate sound to your hearts content. Nothing was out of the realm of musical possibility at this point. Edison and Gray's inventions led to more durable formats of music compacting, stretching, looping, taping and mashing, bringing about the Italian futurist movement, the dadaists, musique concrete, the first ever commercial tape manipulating hit music that charted in Ross Bagdassarian's campy Alvin and the Chipmunks, synthesization of sound and, ultimately, sampling. The totality of musicality in sound. And it all started here. In 1876. For real this time.

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Actually, electronic music's origin was really in 1761! Because it was in 1761 (or somewhere thereabouts) that Jean-Baptiste de Laborde invented the Clavecin Electrique, or "Electric Harpsichord". It was more like a kind of a clavichord, only the clappers were charged with static electricity to ring the bells. Don't ask me how this works, it's got something to do with baroque mysticism I think.

Also, in 1761, Johann Maelzel came upon the brilliant idea of creating the Panharmonicon, which was the first mechanical keyboard that, although technically not electronic (it ran on diesel fuel) automated the playing of all the other instruments in the orchestra. Maelzel then went on to design a universal spec for the Panharmonium by which every musical instrument everywhere could adhere to, so they could be hooked up to one another for universal control and compatibility. Where trumpets could play drums and violins could play clarinets and that sort of stuff. He called it Medieval MIDI, and it was a revolutionary concept for the time, but despite its endorsement by larger-than-life composers like Beethoven, it wasn't received too well so Maelzel would have to wait another 200 years before his dream of hooking every instrument up into the Voltron symphony would be realized.

Also, in 1761, Benjamin Franklin invented the glass harmonica, which has nothing to do with electronic music, but it's a pretty useful fact to know in case you're ever on Jeopardy someday.

And Mozart composed his first symphony in 1761. Of course, he was five years old at the time and his song probably sucked ass (I mean...come on. I wrote my first novel when I was eight. Not that it was any good), and besides, he had help from the evil Earl of Darkwood, kidnapping music prodigies from the 5 Secret Star Systems in his quest for immortality.

So yeah. 1761. The year it all began. I know I've said this before, but I mean it this time.

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Okay, so I didn't mean it that time. But that's because I forgot about something that happened earlier: In 1641, mathematician Blaise Pascal, obviously upset at being in Renes Descartes' shadow all the time, attempted to invent something new and unusual that no one had ever thought of before. So he studied things like differential calculus and probability theory, eventually coming up with the Pascaline, a calculating machine which didn't make noise, unless you consider the clickity-clackingness of its adding algorithm to be music which, if you ask the musique concrete guys,

might very well be. It was, by all accounts, the earliest (albeit crude) known example of digital logic (though it wasn't digital. More like analog logic). The forerunner to computers, and thusly, electronic circuits and instruments.

Pascal would then use this knowledge to go on and create the Pascal programming language, but his idea fizzled out at the starting gate because there were no computers around for him to demonstrate it on. There weren't even any wall sockets for him to plug a computer in even if he had one. Though I suppose he could cruff together some hacks using a whiteboard and a sharpie, but those didn't exist either. And it's not really fun writing programs on paper. Man, was he ever ahead of his time. Just goes to show that timing is everything. War geeks always talk about how cool it would be to take a modern army back to Ancient Rome and see how they'd kick ass in a battle with the infamous legions of Scipio, but what would you do once you ran out of bullets and gasoline? The only supplies a phalanx needs is food. Without the infrastructure necessary for advancement, upgrading and upkeep, nothing modern would be of very use to past civilizations, despite what time travel movies suggest.

So there you have it. 1641. The very first time anyone had even conceived of the concept of electronic music. Without having to delve very far into electronics or music. There is no possible way anything could predate this.

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Actually, as timelines would have it, there is (sigh). In the third century BC, Ktesibios, a Greek engineer, studied pneumatics and hydraulics and managed to come up with a water-controlled organ that he called the Hydraulis. Using an intricate system of levers, switches, and sacrificing the first-born to the Gods of Olympus, the Hydraulis was the first device that enabled someone to play more than one instrument at the same time.

The Greeks also invented the Aeolian harp, which was the first automatic instrument that played music without needing human input. I suppose they could have also invented sequencers and trackers to get the thing to play what they wanted, but they didn't need to. They simply set the strings at a prescribed pitch and let the wind blow through them, creating music. Essentially, the thing was a nothing more than a dressed-up, fancy, multi-tonal whistle. Big fucking deal, guys.

Anyways, the Hydraulis was really keen for its day, because it allowed for harmonic complexity and fullness of sound. What makes it electronic music, you might ask? Well...they used water. And water, as we all know, is a deadly absorber of electricity, so it all makes sense in the end. Organs were ultimately the first synthesizers anyway. That's why all modern synths have a keyboard as their native control panel, and not, like....a series of strings or bagpipes or something. Though electronic bagpipes would be pretty keen.

So. That's it. The origin of electronic music. Over 2000 years ago. Amazing how far we've come.

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Okay, fuck everything I just said. The real inventor of electronic music was Grog, who in 65,000 BC started banging his stick against a rock in a rhythmic, synchronous repetetitetitive motion, thereby producing the first tribal track. And what, pray tell, is so electronic about that? Well....he was struck by lightning at the time. It really gave an analogue warmth and fullness to his sound.

There. Have I done it? Is this the end? Are you satisfied now, you sophmoric, pedantic fucks? Is your precious little electronic dork IDM history now complete for all to recognize the timelessness of your pompous, "forward-thinking" music? Are you pissed off that I left out the Ondes-Martenot or that I snubbed the mighty Ondioline or Heliophon, and you can't wait to send me a snobbish, pretentious email decrying "CONTINUITY ERROR! CONTINUITY ERROR!"?

You know, sooner or later you conceited tools are going to realize that it doesn't matter who made what or how it came out when. The purpose of music is to have fun and enjoy it and identify with the culture that does, not to flaunt your oh-so-deep and sophisticated air of superiority like a snivelling, skinned-knee school kid who got picked last for kickball. And when that happens you're going to want to stop with the intellectual bedwetting, or else we should just keep on going and just admit that electronic music started with the motherfucking Big Bang so we can pride ourselves on how brilliant and genius we think we are (yes, that means you, Tobias).

We gotta draw the line. Where is that line? I don't know. I don't care. I think this is the first timeline I've ever seen that actually goes backwards, though. Hey, howabout that.

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Now, as for the music itself....pay attention to this part, because I'm only going to say this once.

All electronic music that exists today originated in three principle nerve centres: The Caribbean (Jamaica), the American Midwest (Detroit and Chicago), and Western Europe (France, Italy and Germany). There are other hot points that have contributed lots of good things along the way, like Japan, India, Great Britain, Scandinavia and other areas of America, but chiefly these are the Big Three.

The Caribbean fermented reggae and dub, introduced MCing, exported rapping to New York where it promptly became the most popular music in the world, kickstarted dancehall and DJing, and was the womb of the Breakbeat and Jungle sections of this guide.

The American Midwest enriched us with jazz, soul, RnB, funk and blues, morphed into electro, merged with hip hop, toyed with disco, championed the 'black gay club' aesthete, combined all-night dancing with ecstasy, and was the flowerbed of the Techno and House sections of this guide.

Western Europe cultivated electronic instruments, attracted freaky arthouse intellectual scenes like the futurists, dadaists, existentialists, and beats which all which helped found post-modernism, developed minimalism and musique concrete which transformed into industrial, created spacey film soundtracks, ambient and krautrock, sent disco to America and promptly took it back when America got sick of it, and was the test tube of the Trance, Hardcore and Downtempo sections of this guide.

There. You got all that? Now that you know where it came from, it's up to you to decide where it goes. There is no beginning or end to this thing. Simply dive into the genre of your choice and explore for yourself. That is the purpose of music, after all.

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