



## < Episode 621: When Luddites Attack

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DAVID KESTENBAUM, HOST:

On a Saturday night about 200 years ago, a bunch of guys get together at a pub. It's a place called the Shears Inn. You can imagine it as dark, probably smoky. These are big guys. They're drinking beer, and they are not happy.

JACOB GOLDSTEIN, HOST:

And then these guys put down their beers and pick up their weapons. Some of them have pikes - these long spears. Some of them may have rifles. A lot of them definitely have sledgehammers.

KESTENBAUM: These guys are followers of a mysterious general named Ned Ludd. They are the Luddites.

GOLDSTEIN: Around midnight, they start walking out toward this factory a few miles away. Along the way, they pick up more guys. In all, there's about 150 of them. There's no moon, so it's a dark night. They're heading out to this factory. They're not going to attack the owner. They are going to attack the machines, the machines that are taking their jobs.

KESTENBAUM: The owner of the factory knows these people are coming, so he is waiting with armed guards and vats of sulfuric acid. When the Luddites start their attack, the guards open fire.

(SOUNDBITE OF MUSIC)

GOLDSTEIN: Hello, and welcome to PLANET MONEY. I'm Jacob Goldstein.

KESTENBAUM: And I'm David Kestenbaum. We here at PLANET MONEY in the next couple weeks, we're going to be doing some stories about machines taking jobs. Today, we're going to start at the beginning with the true story of the Luddites, the people who tried to stop progress with sledgehammers.

GOLDSTEIN: It's not the story that I thought it was.

(SOUNDBITE OF MUSIC)

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GOLDSTEIN: We wanted to do a story about the Luddites now because once again lots of people are worried about machines taking our jobs. You know, the neighborhood travel agents disappeared. It got replaced by Kayak and Expedia. Giant industrial companies like Kodak went away. Kodak, about 30 years ago, they had about 150,000 employees. Companies like that are getting replaced by little technology startups. Companies like Instagram, which when it got bought for a billion dollars a few years ago had just 13 employees - just 13. And a lot of smart people say this is just the beginning. Machines are getting better, getting smarter. Soon, driverless cars may replace truck drivers.

KESTENBAUM: All this technology is making a few people very, very rich. But for a typical household, pay has not gone up in decades.

GOLDSTEIN: David, all this has happened before. All right, not really, not all of this,

not the part about Kayak and Expedia and self-driving cars, but the part about machines taking people's jobs, the part about technology causing massive upheaval. That part has happened. It happened really dramatically in the early 1800s in England. And the parallels between what happened then and what's happening now are really striking.

KESTENBAUM: The Luddite story is really the first time that lots and lots of jobs were replaced by machines. The machines were making cloth.

GOLDSTEIN: Cloth - cloth was big. It was real expensive. Most people had one, maybe two sets of clothes. And England, at this time, was selling cloth to its colonies all around the world. It was big business, and it required lots of workers. There were lots of jobs.

KESTENBAUM: Women would take raw wool and spin it into yarn. Then these guys would weave it into a fabric on these looms. And then there were these other guys the - what are they called, croppers?

GOLDSTEIN: Croppers.

KESTENBAUM: They had these giant, basically, 50-pound scissors to cut the fuzz off these big bolts of cloth.

GOLDSTEIN: They were shears. They were shears. But, sure, let's call them giant scissors. The jobs they did, they required skill. One guy I talked to, a historian named Bob Allen, wanted to understand this. You know, he had seen these drawings of spinning wheels in books where all the parts are labeled A, B, C, D, but he could never really understand how it worked.

BOB ALLEN: So I went out and bought a spinning wheel, and I got a DVD on how to spin.

(LAUGHTER)

GOLDSTEIN: And so how did it go?

ALLEN: It was a disaster.

(LAUGHTER)

ALLEN: I could never get the wheel to spin at the right speed. I'd either go too fast and the spindle would break or I'd go slowly and then it wouldn't twist enough. And I'd end up with this thread that had big, huge lumps in it. And it'd be really thin, then it'd be a big lump. Then it'd be thin, and it'd be a bunch of lumps. So it's completely ugly and useless.

KESTENBAUM: You know how today, I think, you ask most people, could a machine do what you do? People say, no, not this job. You know, what I do is special. You need a person to do this thing. I'm sure it felt that way. Like, oh, we got these big spinning wheels, but you need a person like me to run it. This requires skill.

GOLDSTEIN: And, in fact, these were good jobs.

JOEL MOKYR: These people had a, for the time - by the standards of time, a good and fairly prosperous life.

GOLDSTEIN: This is Joel Mokyr, an economic historian. Now, he says these cloth workers, these people who were going to become the Luddites, he says they had real skills. They were in demand. They had a lot of freedom.

MOKYR: They really worked whenever they felt like it and didn't work when they didn't feel like it. They were masters of their own schedule. And as a result, you know - it's not like these people didn't work hard, but they had an institution for instance called St. Monday - which, or that's what it was called. And basically what happened was that at the weekend - particularly on Sunday - they celebrated and drank themselves into a stupor. And then on Monday, they were all hung over and didn't work and that was known as St. Monday.

KESTENBAUM: Why St. Monday?

GOLDSTEIN: I think there used to be all these different saints' days like religious

holidays, you know? And so, like, it'd be Monday morning, a guy would be like, oh, I'm so hung over. Is it a holiday today? And they'd be like, I mean, let's call it St. Monday. You know, let's take the day off.

KESTENBAUM: It's a good job when you can invent your own holidays.

GOLDSTEIN: It was a good job. Weaving, in particular, was a great job. Weavers at this time were famous for walking into the pub with a 5-pound note stuck in their hats.

KESTENBAUM: Showing off.

GOLDSTEIN: Yeah, showing off. Basically saying like, look how much money I got, that I can put a 5-pound, you know, bill in my hat. These jobs were kind of like working in, say - I don't know, say, in the auto industry in the U.S. in the '50s. You know, they were solid jobs, and they paid well.

KESTENBAUM: The fact that they paid well, that ended up being their undoing because if you're a worker getting paid a good wage, that's great. But if you are the person paying those weavers and the spinners and the guys with the big scissors, at some point you start thinking, there has got to be a better way to do this. There's got to be a cheaper way to do this, a way that does not require so many people.

GOLDSTEIN: And this is a moment in England when people are building all these different machines that do all these different things.

KESTENBAUM: There's one that plays chess.

GOLDSTEIN: Yeah, it's famous. It's a sensation, right? It's this mechanical guy. He's wearing a turban. It's called the Mechanical Turk. And there's these gears and levers. And it actually, like, lifts up the chess pieces and moves them, and...

KESTENBAUM: It beats people.

GOLDSTEIN: ...It wins. It beats people left and right. Now, it turns out this is actually a hoax. There's a real person hidden inside picking the moves. But it took a long time

for people to figure out that it was a fake because at this moment it was like, OK, sure. Somebody could build a chess-playing machine.

KESTENBAUM: The chess-playing machine inspired a guide out central to this whole story, a guy named Edmund Cartwright. He was a poet and a clergyman. And one day, he just kind of stumbles into this whole world of cloth.

ALLEN: He was on vacation, and he was at dinner in a restaurant. And he overheard a group of cotton manufacturers arguing about how, you know, expensive it was to get their yarn woven. And somebody said, well, what about a machine? And they all laughed at that, but Cartwright interjected into their conversation - well, of course, you can make a machine.

KESTENBAUM: Cartwright went out and he invented a mechanical loom. It basically sucked, though, he was a poet. He lost a lot of money on it.

GOLDSTEIN: But other people took his bad mechanical loom and they made it better. And around the same time, people are developing machines that do all this other stuff you needed people to do. Somebody made a spinning machine. There was Cartwright's weaving machine. And somebody else made a machine that basically ran those giant 50-pound scissors.

KESTENBAUM: And just like in Silicon Valley today, there was all this action. People would make deals. Like this one inventor came up with a machine to make ribbed stockings, and this big industrialist comes along and says, I'll buy that from you.

ALLEN: And the deal is that he gives him a hat with a big feather, and he pays his bar bill for the rest of his life.

GOLDSTEIN: Wait, wait, wait, wait.

(LAUGHTER)

GOLDSTEIN: So it's a hat and all the beer you can drink, basically?

ALLEN: Forever. He gets a lifetime of free beer, yeah. And so he can go to the pub and wear the hat and have a drink every day.

KESTENBAUM: I assume that was a raw deal for the inventor.

GOLDSTEIN: Yeah, probably, I mean, unless the guy drank an incredible amount or it was a really nice hat. It was a really nice hat. What we do know is that for a lot of inventors, the Machine Age was a great time, you know, a great time to be inventing machines. It was also, for a lot of workers, a bad time, you know. This is the first time that you have this massive, massive change on such a big scale. I mean, this is the Industrial Revolution. And the cloth workers, they are right in the center of it.

KESTENBAUM: Today when some new technology comes along, we just assume, like, it's there. It's going to happen. There's no stopping it. But back then, it was not clear. These guys looked around, and they saw these machines making cloth faster and cheaper than they could do it, and the workers think, you know, this is wrong; maybe we can stop it. So they launched a kind of underground war against these machines.

GOLDSTEIN: In 1811, these mysterious letters start appearing. You know, they get, like, posted, on the wall at the village market. They get published in the local newspapers. I actually printed one of them out - here, I printed us both copies. OK, it says, (reading) to Mr. Smith, shearing frame holder at Hill and Yorkshire - Shearing frames, by the way, those are the machines that replaced the guys with the shears, with the giant scissors.

KESTENBAUM: It says, (reading) sir, you are a holder of those detestable shearing frames, and I was desired by my men to write to you and give you fair warning to pull them down. If they are not taken down by the end of next week, I will detach one of my lieutenants with at least 300 men to destroy them.

GOLDSTEIN: And that's not all, if you look a little ways down on the letter here, it says, if we have to come out there and do this, quote, "we will increase your misfortune by burning your buildings down to ashes."

KESTENBAUM: It says basically if you shot at us, quote, "they have orders to murder you and burn all your housing."

GOLDSTEIN: And then, at the very bottom, the letter is signed by the general of the Army of Redressers, Ned Ludd.

KESTENBAUM: There he is finally, the mastermind, the founder of the Luddite movement. Turns out Ned Ludd - not a real guy.

MOKYR: Sorry to disappoint you.

KESTENBAUM: Again, this is Joel Mokyrr.

MOKYR: He never existed apparently. There are some stories that there was a man like that in the 1780s who broke a few machines, but it's very poorly documented. And most people who specialize in the area think he was just about as historical a figure as Robin Hood.

KESTENBAUM: As Robin Hood?

MOKYR: Yeah.

KESTENBAUM: And just like Robin Hood, the story goes Ned Ludd was hanging out in Sherwood Forest, and he had this army with him.

GOLDSTEIN: Somehow having this nonexistent general in charge actually helped a lot. You know, people had been writing angry letters before. Sometimes they'd even been burning down factories before. But the invention of Ned Ludd made the whole thing seem - made it seem bigger. You know, it's not just like random workers here and there acting out. It's like there is this secret army, this secret army called the Luddites.

KESTENBAUM: And they were not like an anti-machine cult or anything. I mean, I think they were fine with steam engines. They just hated the machines that were taking their jobs. That's what they were attacking.



GOLDSTEIN: And by attacking machines, we actually mean attacking machines.

MOKYR: I think they would have some people with rather primitive rifles. Many of them would have knives. Quite a few of them carried sledgehammers, and they would break into a factory, overpower any guards, if any were there, and they would basically break the machinery and leave. These are fairly delicate mechanisms. If you hit it hard once or twice with a sledgehammer, you killed it.

GOLDSTEIN: Within a few months, Ned Ludd is everywhere. He's destroyed stocking frames in Nottinghamshire, burning down factories in Manchester. There are dozens of Luddite attacks in just a few months. And, at this moment, people are thinking maybe this is going to be a revolution.

KESTENBAUM: People are singing songs about this Ned Ludd guy in pubs. Some of the attacks awesomely are done in drag. Guys dress up as Ned Ludd's wife.

GOLDSTEIN: There's this one factory owner, and when he walks down the street, kids shout at him. I'm Ned Ludd. No, I'm Ned Ludd. Government officials get letters from somebody claiming to be Ned Ludd's solicitor general who's filing charges against him in Ludd court in Sherwood Forest.

KESTENBAUM: There is no Ludd court. There is a Sherwood Forest. If the whole thing sounds a little silly, it was not. These were serious riots, and it seemed possible the Luddites could beat the machines because over in France there were similar uprisings. They were in factories making rifles.

MOKYR: And the people who used to make firearms, known as armourers, basically rebelled against that, and they broke some of the factories, and they went on strike. And the government needed rifles now, and so eventually the mechanization process was stopped.

GOLDSTEIN: The workers won. France shut down those new factories. And the Luddites, that's basically what they want to happen in England, right? They want Parliament to pass laws that ban the new machines or they want rules that require

higher payments for work that's done by hand.

**KESTENBAUM:** Instead, Parliament passes a law that makes destroying machines punishable by death. The army sends out thousands of soldiers into the area where the Luddites are active. And the factory owners, they start arming themselves.

**GOLDSTEIN:** And that brings us to that night, that Saturday night 200 years ago with the angry guys in the bar, right? So these guys, they leave the bar. They start marching out to the edge of town, out in this field. They meet up with a bunch of other guys. There's about 150 of them in all, and they march on this factory.

**KESTENBAUM:** When they get there, the armed guards see them and they start firing, and there's this battle. The guys with the sledgehammers get up to the factory. They start pounding on the door, but they can't get through it. People break the windows. The Luddites at some point have to pull back. There's gunfire. They charge again, but they cannot get past that door, and they end up retreating.

**GOLDSTEIN:** Two of the Luddites are shot dead outside the factory. A couple others get captured, and a bunch of people involved in this attack get arrested, rounded up and thrown in this castle. The government holds a mass trial, finds a bunch of people guilty, and some of these guys get executed; they get hanged.

**MOKYR:** People saw what happened to the Luddites. They were, you know, these people weren't hanged in some dark room in the middle of the night in the prison court. These people were hanged in public. In fact, they made the scaffolds doubly high so that everybody could see them.

**KESTENBAUM:** It's one thing to fight the machines. It's another thing to fight the machines and the factory owners and the army and the British government. Ned Ludd pops up here and there for a little while longer, but basically that is the end.

**GOLDSTEIN:** The last we hear from Ned Ludd is this apocalyptic letter in 1816. A letter that says there is about to be this one climactic battle. Quick quote, "the last die will be cast, and either the Luddites or the military will have the command." But that

battle never happens.

KESTENBAUM: Of course the Luddites lost. Once again, here's Bob Allen.

ALLEN: And the number of handloom weavers goes from 250,000 to zero...

GOLDSTEIN: To zero?

ALLEN: ...In a couple of decades. Yeah, to zero. There's - nobody does it by hand in 1850.

GOLDSTEIN: That world of 1800, that world where cloth workers had Saint Mondays and 5-pound notes in their hats at the pub, that world was gone.

KESTENBAUM: The lesson people usually draw today from the Luddite story is that their fight was both hopeless and just dumb. It was a bad idea. The Industrial Revolution that the Luddites were fighting was one of the great events in human history. I mean, it gave us trains and then airplanes and vaccines, more food than anyone could have imagined, a world where you can have more than just two pairs of pants and jobs - all these new jobs that, you know, yes, those jobs went away, but new jobs came along.

GOLDSTEIN: Yeah, I mean, it's, you know, it's tempting to shout back across 200 years of history to the Luddites and just say, like, trust me, trust me, things are going get so much better. You Luddites, you are on the wrong side of history.

KESTENBAUM: The truth though is that for the Luddites - the weavers, the guys with the big scissors - things did not get better. They didn't get better in their lifetimes. Things did not even get better for their kids.

GOLDSTEIN: When you step back, when you look at what happened in England as a whole around this time, it is shocking. For 50 years, in this moment when England is building really what is the first modern high-tech global economy on the planet, they're creating all these industrial fortunes, but average wages for workers don't really budge.

KESTENBAUM: Few people make a lot more. It's a good time to be building factories or repairing machines, but lots of people make less.

ALLEN: The winners won and the losers lost, and that was all there was to it.

KESTENBAUM: Were the Luddites right then?

ALLEN: Well, it was certainly I think in their interest to wreck machines. They were acting rationally, and I think to say that they were irrational and opponents of progress and deluded is a big mistake.

KESTENBAUM: We are living now in the middle of a second machine age. It's computers and software this time, not weaving machines. But some of the same things are happening. You hear about the rise of the 1 percent, about how income for ordinary people is stagnant. Part of that is caused by technology.

GOLDSTEIN: And the traditional economic response to this is these problems are temporary. Technology makes everybody better off in the long run, but one of the things the Luddites have to teach us is the long run can be really, really long.

(SOUNDBITE OF MUSIC)

GOLDSTEIN: Thanks to Jane Humphries of Oxford University, who, among many other things, told me about the weavers putting 5-pound notes in their hats. Kevin Binfield, who edited the book "Writings Of The Luddites" provided lots of details about that failed attack on Rawfold's Mill. And also thanks to Patrick Allitt of Emory University.

KESTENBAUM: Our show today was produced by Frances Harlow and Nadia Wilson. You can send us email, [planetmoney@npr.org](mailto:planetmoney@npr.org).

GOLDSTEIN: If you're looking for something else to listen to, try StoryCorps. StoryCorps is real people telling real stories about their lives. You can find the StoryCorps podcast at [npr.org/podcasts](http://npr.org/podcasts).

**KESTENBAUM:** We'll have more stories about machines taking jobs. There are some very smart people out there arguing that this second machine age is going to be very different than what the Luddites went through, that when computers and robots take jobs, those jobs will not come back. There will just be fewer jobs, period.

**GOLDSTEIN:** Next time on the show, we'll look at what robots are good at and what they're bad at, and it is surprising. I'm Jacob Goldstein.

**KESTENBAUM:** I'm Ned Ludd. Thanks for listening.

**(SOUNDBITE OF MUSIC)**

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