Episode Book

EPISODE #5985

Meccano at 125: What Kids Actually Learn From Bolts

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SYNOPSIS

Meccano announced a major relaunch last month marking 125 years, with 22 sets across four ranges — and the all-metal construction set is now the premium tier you unlock at age ten. This episode digs into what changed since the 1990s sets, when a kid can actually start, and what the research really says about whether tinkering builds lasting mechanical intuition. The evidence is more interesting than the folk belief: spatial assembly at three predicts math skills at five, loose parts play links to executive function, and yet nobody has ever run the study that would prove the engineer-making story. The mechanism is plausible, the correlation is real, and the causal arrow stays stubbornly unproven.

TRANSCRIPT



Corn

Ezra is fifteen months old, and Daniel has been watching him pick up his first toys. That's the whole reason we're here.



Herman

Because the first toy is where the nostalgia ambush happens.



Corn

It got him thinking about his own childhood, and he built a lot of model cities. LEGO, Meccano, then paintball guns, then stop-motion LEGO movies.



Herman

A natural progression.



Corn

The part he actually cares about is the Meccano and the nuts and bolts. He's been doing a lot of DIY in the apartment here, fitting washers, tightening bolts, and he says it feels instinctive. He doesn't remember ever being taught it. So he's wondering whether those hours of tinkering are where that came from. His father was a civil engineer, which he suspects is not a coincidence.



Herman

He's probably right, and also probably wrong, and we'll get to which.



Corn

He wants to know how Meccano has changed since the metal sets he remembers from the nineties. Whether it's kept genuine mechanical assembly or drifted. What ages it's for now. When a kid can actually start. And what the alternatives are for open-ended building play. The bigger question sitting underneath is whether tinkering in childhood actually



Corn (continued)

builds anything lasting, or whether we all just believe that because it feels true.



Herman

So let's start with the basics, because Meccano is one of those things everyone has heard of and almost nobody can describe. Perforated metal strips, plates, angle girders, wheels, axles, gears, connected with nuts and bolts. That's it. That's the whole system. A screwdriver and a couple of spanners.



Corn

Nothing in it looks clever.



Herman

Nothing in it looks clever and the whole thing is a work of genius, and the genius is standardization. The holes are spaced at half-inch intervals. Twelve point seven millimeters. The threads are five thirty-seconds Whitworth. Those two numbers have not changed in over a century. You can take a strip made in nineteen ten and bolt it to a part made last year.



Corn

That's absurd.



Herman

It's the reason the brand survived. Every competitor invented a new hole spacing and every competitor died, because a system where the old parts fit the new parts accumulates value. A system where they don't is just a toy in a box.



Corn

Frank Hornby of Liverpool. Patented in nineteen oh one. And he didn't file it as a toy.



Herman

He filed it as Improvements in Toy or Educational Devices for Children and Young People, and the Liverpool museums are explicit that he meant it to teach levers, gearing, mechanical principles. He wanted children to learn technical know-how. It was curriculum in a tin.



Corn

And that gets us to the part Daniel will not enjoy. He remembers the nineties as the classic era. The metal, the single colour, the fat instruction book.



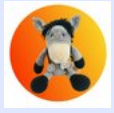
Herman

The nineties were already the remake, Corn. The classic numbered outfits, the fives through the tens, ran until ninety-two. Ninety-four added pull-back friction motors. Ninety-six added infrared Action Control. Ninety-nine, the Motion System range, threw out the single colour scheme entirely and went neon, different colour per set.



Corn

So his childhood Meccano was already the modern one.



Herman

He's nostalgic for a product that his own grandparents would have called a departure. That's the first misconception to kill. The austere all-metal Meccano is older than the one he grew up with.



Corn

Everyone's golden age is somebody else's decline.



Herman

And the decline narrative continues. Meccano announced a major relaunch last month, marking a hundred and twenty-five years. Twenty-two sets across four ranges. Makers at three plus, Builders at five plus, Masters at ten plus, Pro at sixteen plus. New logo, new



Herman (continued)

packaging, and redesigned instructions.



Corn

Redesigned how?



Herman

The old instructions were notoriously complex, and that was arguably the point, but Addo Play has rebuilt them with colour-coded visuals, step-by-step guidance, progress markers. Much friendlier.



Corn

Whose idea was the relaunch?



Herman

Addo Play, which is the design and distribution arm of the UK retailer The Entertainer. They signed a multi-year global licensing agreement with Spin Master in twenty twenty-five to design and manufacture a rejuvenated Meccano line. Spin Master had bought the brand outright in twenty thirteen.



Corn

And the factory?



Herman

Gone. The last dedicated Meccano factory, in Calais, in France, closed on the thirty-first of October, twenty twenty-three. Fifty-one jobs.



Corn

So a hundred and twenty-five year old brand is now a licensed logo on somebody else's supply chain.



Herman

That's how most heritage toy brands survive now. It's not a scandal, it's the business model. Addo Play points at their Fuggler line, forty million dollars of global sales in two and a half years. They know how to revive a dormant brand.



Corn

Read the ranges out to me. What is a three year old actually getting?



Herman

Makers, three plus. Large chunky parts, specialised tools for tiny hands, plastic. The five-in-one Mega Set is seventy-eight pieces, the two-in-one race car is thirty-five.



Corn

Thirty-five pieces.



Herman

Builders, five plus. Larger interchangeable plastic pieces. A hundred and fifty-one piece free play bucket, a three-in-one pull-back buggy.



Corn

Plastic.



Herman

Plastic. Masters, ten plus, is where metal comes back. Real metal parts, motors, rubber tyres, tools. The Maker's Toolbox is four hundred and thirty-seven pieces. The twenty-seven-in-one off road racer is five hundred and eleven.



Corn

And Pro?



Herman

Sixteen plus, adult collectors. The Aston Martin Aramco F1 car, twelve hundred and three pieces, and a Ducati Monster motorbike. Meccano's own copy calls Pro models collector-grade, display-worthy creations.



Corn

So the all-metal construction set is now the premium tier you unlock at ten.



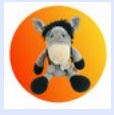
Herman

That's the inversion. The original premise was metal for everyone, and the brand now sells plastic to toddlers and rations metal as a reward. Read their own About page and it's explicit. Makers develops fine motor skills and early problem-solving. Masters is a true gateway to real-world engineering. Pro is display.



Corn

Gateway implies a gate.



Herman

There is one. That's the honest description of the product ladder.



Corn

And the bolts themselves changed. That one I want, because Daniel's whole thing is nuts and bolts.



Herman

The original bolts were slotted, brass-plated. You needed a flat screwdriver and if you slipped you chewed the head. Modern Meccano uses hex-headed, zinc-plated steel bolts, what most people would call Allen bolts.



Corn

Why does that matter?



Herman

Two reasons, both practical. A hex socket gives you six tightening angles instead of two, so you can get at a bolt in a tight corner where a slot would be unreachable. And you can trap the bolt head on the tool and lower it into a hole without dropping it, which matters enormously when the hole is inside a frame and your hands are small.



Corn

That's a genuine improvement and I hate it.



Herman

You hate it why?



Corn

Because I want the brass to matter.



Herman

The brass never mattered to anyone outside a museum.

L

Larry

Are your bolts too loose? Is your marriage too tight? Introducing TorqueMate, the world's first fully emotional fastener system. TorqueMate bolts sense when a joint is under strain and tighten themselves automatically, so you never have to think about mechanical assembly again. Build a bridge. Build a marriage. Build a bridge inside your marriage. TorqueMate Pro comes in twelve hundred and three pieces and arrives pre-assembled, because assembly is the past. Warning, TorqueMate may loosen spontaneously in humid conditions, is not compatible with any existing construction system including itself, and should not be used on anything load-bearing, moving, structural, decorative, or marital. TorqueMate is a registered concept.



Corn

Who booked that?



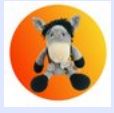
Herman

I have no idea.



Corn

Somebody at the network is selling our ad slots to strangers.



Herman

Put a pin in it. The interesting question for Daniel is whether his instinct came from the Meccano at all.



Corn

He built the model cities before he ever touched a spanner for real. That's the thing he's noticing.



Herman

What's noticing? The washer goes between the bolt head and the plate, or between the nut and the plate, depending on what's moving and what isn't. That's a rule, and the rule is the whole of mechanical intuition. If I want this joint to slide, the washer goes on the sliding side. If I want it locked, it doesn't.



Corn

And he says it feels like brushing his teeth.



Herman

That's the correct description, and it's also why the question is hard. He can't remember learning it because it happened before he had the machinery for remembering learning it. Nobody sits a child down and explains washers. They hand them a jar of them and let them bolt two strips of metal together wrong, six hundred times.



Corn

So let's take the evidence seriously for a minute. When can a kid actually start?



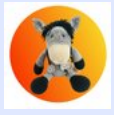
Herman

Meccano's own answer is three, and they describe Makers as an adult-led activity. So for Ezra at fifteen months, he is below the youngest tier. Nobody is handing him a spanner.



Corn

He'd eat it.



Herman

He would. But the interesting finding is that the skills that matter show up even earlier. There's a child development study from twenty seventeen that measured spatial skills in three and four year olds. Spatial skills at three predict spatial skills at five, and preschool spatial skills predict mathematics skills at five.



Corn

Measured how? What did they ask a three year old to do?



Herman

Spatial assembly. Puzzles, blocks. Copying a structure they'd been shown. It's the same family of activity as sticking two pieces together and seeing whether the shape matches.



Corn

So the block tower and the metal strip are on the same curve.



Herman

That's the claim. The study is explicit about it. Spatial assembly is practice, and it names puzzles and blocks directly. It also links spatial skill to later STEM success.



Corn

And there's a second piece.



Herman

Twenty twenty-three, a review in the Journal of Intelligence, on loose parts play in preschools. Constructive play linked to executive function, cognitive self-regulation, reasoning, problem-solving. The idea being that a pile of undirected parts makes a child hold a goal in mind, plan, and correct course.



Corn

Loose parts is the exact opposite of a kit with a picture on the box.



Herman

It is. And that's where I have to be straight with Daniel, because the evidence does not say what he hopes it says.



Corn

Say the honest version.



Herman

Nobody has run a study that takes kids who played with Meccano and follows them to see if they became engineers. That study does not exist. What exists is correlational work on spatial assembly and math, and a review on loose parts play, and a strong folk belief that tinkering builds engineers.



Corn

How strong?



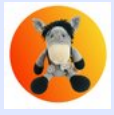
Herman

Universal. Every engineer of a certain age tells this exact story. And it is very hard to design a study that could falsify it, because the causal arrow runs through a childhood you cannot randomize.



Corn

You can't assign half the children to Meccano.



Herman

You can't. And the kids who get Meccano are the kids whose parents bought Meccano, which selects for a whole family of things.



Corn

So Daniel's instinct is unproven and also probably right.



Herman

Both. That's the uncomfortable landing. The mechanism is plausible, the correlation is real, and the direct causal link is not established.



Corn

My family has been climbing things for several million years. Nobody taught me and nobody tested me either.



Herman

That's the other thing. Daniel may have inherited the aptitude from a civil engineer father and built the model cities because of the aptitude, not the other way round. The Meccano might be where the aptitude showed up rather than where it was made.



Corn

He'd hate that reading.



Herman

He'd hate it, and it might be true, and it might not. Both directions can be running at once. Kids who are good at spatial assembly are drawn to construction toys, and construction toys make you better at spatial assembly. That's a feedback loop, not a cause.



Corn

What about the alternatives? Because he asked.



Herman

The open-ended ones. KEVA Planks, which is four hundred maple planks and no instructions at all. Melissa and Doug hundred wood blocks. Magnetic tiles, the Picasso Tiles kind. And DIY engineering kits, Smartivity is the one that keeps coming up in the toy-industry award lists.



Corn

So the plank and the magnetic tile are the loose parts.



Herman

They are. There's also a whole modern Meccano-adjacent category. Engino, Ugears, Nanoblock. And if you want the purist's answer, Switzerland has been making a Meccano-compatible system since nineteen forty-one, called Stokys, and you can still get it.



Corn

Same half inch spacing?



Herman

Same spacing, same threads. A hundred years of compatibility is a strong argument.



Corn

And it's on sale here. Daniel was pleased about that.



Herman

It is. Israeli retailers list it. Bug dot co dot il has the Junior Deluxe box at ninety-nine shekels, the Junior bucket at two hundred and twenty-four ninety, a Monster Jam set at a hundred and forty-nine. Giftim has Junior Helicopter and Bulldozer at sixty-nine shekels each. Most of what's listed here is the Junior line.



Corn

Sixty-nine shekels.



Herman

For a toy that will be built twice and then live in a bucket forever. That's the cheap end.



Corn

That's the honest end. You spend sixty-nine shekels and the kid builds the helicopter and then the helicopter exists.



Herman

Which is why the loose parts matter. A kit with a picture on the box has a correct answer. A bucket of blocks doesn't.



Corn

This is the toy-to-interaction ratio again. A thing that does everything leaves nothing for the kid to do. I remember saying something like that once and I stand by it.



Herman

You said it and you were right, and it applies harder here than it did then, because the modern Meccano ladder is explicitly built to move a child up through increasingly correct answers. The three year old gets chunky plastic. The five year old gets interchangeable plastic. The ten year old finally gets metal and a motor.



Corn

So the gate is real. And the kid who is only ever given the toddler tier is being taught to follow instructions competently.



Herman

Nobody in the category is claiming otherwise. Masters is where Meccano says real-world engineering starts, and Meccano is telling you that in its own marketing.



Corn

Which means the question Daniel should be asking is not which Meccano to buy his son.



Herman

What is it?



Corn

It's whether he buys the kit or the bucket.



Herman

I'd say both, and I'd say the kit is for the afternoon and the bucket is for the decade.



Corn

Do you actually believe the bucket does more?



Herman

I believe the bucket does the thing the study measured and the kit does the thing the marketing promised. That's not the same claim.



Corn

No. That's the careful one.



Hilbert

Bought the Aston Martin.



Corn

The F1 car.



Hilbert

Twelve hundred and three pieces. Step forty-seven, Herman. You know what happened at step forty-seven?



Herman

Tell us.



Hilbert

Nothing happened. I sat there for ten minutes waiting for the diagram to be ambiguous and it wasn't. Colour-coded. Arrow pointing at the hole. Progress marker at the bottom saying I was forty-seven steps in. I've never been so alone in my life.



Corn

The instructions were too clear.



Hilbert

Too clear. The old drawings, you had to squint at them, and half the time you'd build a sub-assembly wrong and find out three stages later, and you'd sit there and think, whose fault is this, and the answer was yours, and that was the education. They took the education out and put a progress marker in.



Herman

So you're against the relaunch.



Hilbert

I'm not against any of it. That's what everyone gets wrong. The plastic sets for the toddlers are the smartest thing this brand has done since the war.



Corn

Since which war?



Hilbert

Either. Look, a three year old got handed a plastic motor housing and a chunky spanner. That child is on the ladder. In my day you waited until you were eight and you got brass and you ate it. The plastic is genius. I'm just saying I got to fifty and I missed the squinting.



Corn

So you finished the car?



Hilbert

I finished the car. It's on the shelf. My tortoise won't look at it.



Herman

Your tortoise.



Hilbert

Brunel. Eighty-seven years old.



Corn

Brunel is eighty-seven.



Hilbert

Eighty-seven and honestly working more than I am. He runs a small construction firm. Retaining walls, mostly, garden retaining walls, some paving. Very good eye for grade.



Herman

A tortoise runs a construction firm.



Hilbert

He subcontracts. He's the one who checks the levels, and the men respect him because he's slow and he never guesses. That's the whole trade, Corn. Somebody who looks at the gap for an hour and then says the word.



Corn

And he won't look at the Aston Martin.



Hilbert

He refuses plastic parts. Very specific aesthetic. It's the one thing we argue about.



Herman

What does he work in?



Hilbert

Stone. Stone and concrete and occasionally a bit of steel if the light's right. He came up on the pre-war stuff, that's the thing. When I inherited the collection, he'd already made up his mind.



Corn

The collection being pre-war Meccano.



Hilbert

Kept in a room. Dehumidifier, no window, temperature holds at about eighteen. It's the only room in the flat that's properly climate-controlled, which was a decision I made and stand behind.



Herman

How much of it?



Hilbert

Enough. My uncle was a Meccano demonstrator at a department store. That was a real job, you stood behind a table in the toy department on a Saturday and built a crane and handed the child the spanner at the end to prove it was theirs.



Corn

You built a drawbridge for the tortoise.



Hilbert

I built a drawbridge for the tortoise. Working model, rope over a pulley, counterweight, the lot. Spanned the gap between his basking slate and the warm end.



Herman

And?



Hilbert

Worked perfectly for nine days. Then he figured out how to operate it, and once he could operate it, he wouldn't use it. Went round the long way, over the gravel. Because a road you built yourself is a road that means something, and a road I built him is a favour.



Corn

So the drawbridge is still there.



Hilbert

Still there. He walks past it. He knows exactly what it does. That's the thing about Brunel, Herman. He's eighty-seven and he's still got his taste, and his taste is stone, and there's nothing I can do about it.



Herman

There's a lesson in that.



Hilbert

There's a day, is what there is. I built the thing and waited on him and he went round the long way, and that's where I'd leave it.



Herman

Twenty twenty-six.



Corn

The relaunch is a revival attempt, in the sense that Addo Play has put a full product ladder behind the name, redesigned the instructions, and gone back to retail at scale. The part I'm stuck on is that the ladder tops out with the thing the brand used to be built out of.



Herman

Metal as the reward. Three year old gets plastic, ten year old gets the real material.



Corn

Which means the child who starts at three and stops at seven never meets a bolt. He meets a chunky plastic fastener that goes click.



Herman

He does. And he may be perfectly fine. The three year old isn't ready for a bolt anyway, which is Meccano's entire argument, and it's a good argument.



Corn

It is a good argument. It's just not Daniel's argument.



Herman

No. Daniel learned on metal and is now asking whether his son will learn the same way, and the honest answer is no, because the metal now costs more and arrives later.



Corn

Does any of this change the instinct question? Because that's the one he actually cares about.



Herman

It doesn't change it. The mechanism is that a child repeats an action until it stops being an action and becomes a way of seeing, and whether the fastener is brass or plastic doesn't change that, provided the child is the one doing the fastening.



Corn

Which is the whole point of the bucket.



Herman

The danger isn't plastic. The danger is a toy that fastens itself.



Corn

Because then the child is watching.



Herman

Then the child is watching, and watching is not tinkering. That's the line, and it runs through every product in the category, not just Meccano.



Corn

So the 2026 relaunch might grow mechanical intuition in a child who'd otherwise never have touched a construction system at all. And it might also teach a generation to build a twelve hundred piece car by following a colour-coded arrow.



Herman

Both, at different price points and different ages. The range contains its own counterargument.



Corn

Most things do.



Herman

That's the unhelpful and correct summary.



Corn

The thing people get wrong is that Meccano is still an all-metal system, and that a kid who grows up on it will become an engineer because of it. The metal is now the ten-plus tier, and the causal claim has never been tested.



Herman

Both true at once, and neither one is a reason not to buy the box.



Corn

Ezra's not getting a spanner for a while yet. Fifteen months is still firmly in the put-it-in-your-mouth phase, and there's nothing wrong with that.



Herman

Give him two years and a bucket of chunky plastic parts that go click, and let him bolt the wrong two together forty times. That's the whole mechanism. It's not the metal and it isn't the diagram. It's that somebody small is allowed to do it badly for a long time and find out why it didn't hold.



Corn

And somewhere in that gap between the bolt and the wrong plate is the thing Daniel can't remember learning.



Herman

Which is exactly why he can't remember learning it.



Corn

Thanks as ever to our producer, Hilbert Flumingtop, who has been at the desk the entire time and would like everyone to know the temperature is holding at eighteen.



Herman

For more along these lines, there's episode eighteen sixty-one, Emergency Prep You Can Sing To; episode five fifty-six, The Toy-to-Interaction Ratio; and episode seven, Building Custom ASR Tools. This has been My Weird Prompts.



Corn

The human A I collaboration podcast. If you enjoyed this one, leave us a review wherever you get your podcasts. It helps other people find the show.



Herman

We'll be back soon.

SOURCES

What the research for this episode read before the script was written. Primary sources first.

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