# The Factory Story Puts a True Chapter in the Wrong Century

*Your child's grade level dates to the 1840s, decades before schools were proudly called factories.*

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## It is ten o'clock on a Thursday night in late August, and you have just written a number in the corner of next week: twenty-five hours.

It sounds like school. You stop with the pencil in the air.

The kitchen table is covered. There is a new planner, still stiff, open to the first week of September. There are three workbooks with the grade printed on the spine: 1, 4 and 6. There is a mug of tea you keep forgetting.

You drew the week without thinking. Math at 8:30. Reading at 9:15. A break at 10:30, then writing. You ruled a line between each block, the way the lines sat on the schedule taped to every classroom door you ever walked through. Then you added up the blocks. At the back of the planner there is a page for marks at the end of each term. You have already ruled the columns.

Earlier in the week, folding laundry, you heard it again on a podcast. Schools were built to make obedient factory workers, copied from Prussia. You nodded at the laundry. It explained a lot. It was part of why you brought them home.

Now you look down at what you have drawn. Grade levels. A week counted in hours. A page for marks.

You have drawn a school.

If your children are in school, you know the same pieces from the school side: the class list that arrives in August, the bell schedule on the fridge, the report card that comes home in an envelope. Either way, the pieces are the same. And they feel less like choices than like weather.

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## The pieces that don’t look like choices

Nothing at that table is a failure of imagination.

Grade levels, the school year, the hour-long block, the mark at the end of the term: these were the first shape of school any of us knew. We met them at six, long before we could have questioned them. By the time we are parents, they don’t feel like ideas somebody had. They feel like what school is.

Historians have a name for this. David Tyack and William Tobin called the fixed features of schooling its “grammar”: the standard ways of “dividing time and space, classifying students and allocating them to classrooms, and splintering knowledge into ‘subjects.’” They chose the word on purpose. Practices like age-graded classrooms, they wrote, “structure schools in a manner analogous to the way grammar organizes meaning in language.”

Think about the grammar of your own language. You use it all day and almost never see it. You notice it only when someone breaks it. Then the sentence sounds wrong, even when it means exactly the same thing.

That is what happens at the kitchen table. A morning with no hour blocks sounds wrong. A child doing fourth-grade math and second-grade spelling sounds wrong. A term with no marks sounds as if you have stopped taking it seriously. None of that is because you lack nerve. You are speaking the only grammar of school you were ever taught.

So the weight is real, and it isn’t yours. A design that outlives the reasons it was built stops looking like a design. It looks like nature, and nature is hard to argue with.

Then the factory story arrives and offers a way out. It says the grammar isn’t nature after all. Someone chose it, and chose it for bad reasons: to turn children into workers who sit still and answer bells.

You can see why that lands. It gives the weight a name. It tells you that what you felt, watching a bright child go flat across a long school day, was never in your head.

But it also hands you a second weight. If every piece was built to make your child an obedient worker for someone else, then every workbook with a grade on the spine is a small betrayal, and the planner on the table becomes evidence against you. A parent can carry that for years.

There is a lighter way to carry it. It starts by taking the story seriously.

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## The story, told plainly

Here it is, for anyone who has heard only pieces of it.

In the 1800s, the story goes, the German kingdom of Prussia built a school system to produce obedient soldiers and factory workers. American reformers admired it and copied it. That is why children are sorted by age, why they move when a bell rings, why they sit in rows and get graded. The school day, in this telling, is a machine for making a workforce.

Thoughtful people believe it. You heard it again this week. You may have told it yourself, at a park or over dinner.

It deserves respect, and not as a courtesy. It is right that the school day was made by people, not found in nature: nobody found grade levels growing in a field. It is right about a feeling many parents have, that a long day of bells and marks can seem built for someone other than the child in front of you. And parts of it are true. Prussia really did lend American schools some of their shape. School leaders really did call schools factories, and they said it with pride. You will meet both below.

Nothing here asks you to give up the questions the story taught you to ask. It asks only that we check the dates. Put each piece we can date back in its own year, next to the problem it was built to solve, and see what the picture looks like then.

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## What crossed the ocean

Start where the story starts.

In 1763 Frederick the Great, an absolute monarch, ordered Prussia’s country children to attend school from about five until thirteen or fourteen, with fines for parents who kept them home. That was before Prussia had much industry. The education writer Audrey Watters, who went looking for the history behind the factory story, put it plainly: training future factory workers “was not really the point.”

Something did cross the ocean, though. In 1839 Massachusetts opened state normal schools to train teachers, which one historian describes as “introduced after the Prussian model.” Four years later Horace Mann, the state’s school reformer, toured schools in Europe. Three scholars who wrote about the tour name two Prussian practices that particularly impressed him: age-graded classrooms, and a new teacher for each year. Both “were novelties as far as American public school organization was concerned.” By the 1840s, the historian Larry Cuban writes, the eight-grade grammar school, “an organizational innovation imported from Prussia,” had “appeared across New England.”

So the borrowing was real. What came over, in these accounts, was a way of training teachers and a way of dividing children into grades.

The obedience worry came over with it. Critics in Mann's own day said Prussian schools taught passive obedience to the government. Mann answered that American schools could use the same methods to support a republic. People argued about it in public from the start. If you have told the Prussia part of the story yourself, that argument is yours to keep.

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## Hundreds in one hall

Here is the part that surprises most people. America did have schools that looked like factories, and they came first.

In the early 1800s, many city children learned in monitorial schools. Watters describes them as "housed in large warehouses – larger often than many of the nascent factories at the time – with hundreds of students in one massive classroom with one teacher." The monitorial system, she writes, "expressly operated like a factory."

The ordinary schools of that time had a likeness of their own. The historian Carl Kaestle argues that schools became somewhat like factories then, not because they copied factories or trained factory hands, but because schools and workplaces shared the same push for efficiency.

So the likeness to a factory is old. It is older than the graded classroom.

By the 1830s and 1840s, Cuban writes, parents and educators were complaining about how little children learned in the monitorial halls. Those schools faded as the graded grammar school spread.

In 1848 Boston opened the Quincy Grammar School. An account from 1851 said its "greatest improvements consist in having a separate room for each teacher and a separate desk for each scholar." Its National Register listing calls it the first graded grammar school in Massachusetts "and possibly in the United States." Its first master, John Philbrick, later recalled that the design had been taken up "from the Atlantic to the Pacific coast."

A 2024 university report on a book about myths in school history puts the turn bluntly. The one-teacher, age-graded classroom, it says, "replaced a true factory model in the early 19th century." The same report calls the design "flexible for schools": "schools of any size or type could be built by aggregating single-teacher classrooms." That mattered, because the schools kept growing. Federal historical statistics show public school enrollment nearly tripling in fifty years, from about 7.6 million children in 1870 to 21.6 million in 1920.

The graded room was not a perfect answer, and it did not serve every child alike. David Tyack's history of city schools covers, in its publisher's words, "the opportunities offered to some, the injustices perpetuated for

others.”

If you have ever sat at a school conference and heard where your child “should be” for her age, the shape of that answer is older than the teacher giving it.

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## School counted in hours

Tyack and Tobin’s grammar begins with “dividing time.” The number in the corner of your planner is one way of dividing it: school counted by time in a seat. Seat time, people call it now.

Counting the school year in days is old. In 1870 the average public school year already ran about 132 days. Counting high-school study in hours of class came later. An education association proposed it in the 1890s. What made it stick was a pension fund.

In 1905 Andrew Carnegie, then the world’s richest man, wrote to college presidents about a pension fund for professors, calling theirs “one of the poorest paid but highest professions in our nation.” He sent the trustees of his new foundation a ten-million-dollar check. To qualify for the pensions, a college had to require four years of high-school preparation, counted in units: “a course of five periods weekly throughout an academic year.” Few colleges had pensions of their own, so they wanted these. A reference work on curriculum history notes that the unit was quickly accepted in colleges and high schools.

That is the Carnegie unit. The Foundation’s own 2015 report defines it as 120 hours of class time: an hour a day, five days a week, for twenty-four weeks. The same report says the unit “was never intended to function as a measure of what students learned.” It counted preparation, to answer a pension fund’s question: which colleges required enough of it to qualify?

It counted high-school credit, not a six-year-old’s week. But the total in your corner is the same kind of count: school judged by the hours it fills. And the foundation that made that count standard says itself that it was never meant to measure what students learned.

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## From a note home to a mark

The page at the back of the planner has a history too, and it starts small.

In the 1800s, reports on a child’s progress went to parents, first spoken and then written out in words. Early report cards, the historian Ethan Hutt writes, “served almost strictly as a communication device between teacher

and parent.”

Then came the twentieth century. High schools turned to percentage grades, and by the 1940s more than 80 percent of American schools used A to F. A review of a century of grading research gives the reasons as schools saw them: high schools were teaching more varied students and more specialized subjects, and written reports took teachers too long. High schools also kept grades that ranked students, the review adds, to meet colleges’ need to rank students for admission. Hutt and his fellow historian Jack Schneider argue for another reason: a growing school system needed marks that could travel, marks a stranger could read.

Open a report card hoping for a sentence about your child, find a single letter instead, and you have felt that change from the receiving end.

The letter is not empty, though. Studies in the early 1900s “generally condemned teachers’ grades as unreliable,” the same review found, while later research suggests grades do measure something real: a mix of what a child knows and what teachers value in student work, such as effort. A mark is neither nothing nor everything.

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## The chapter that is true

Now the part of the story that holds. It begins in the early twentieth century, more than sixty years after Boston’s graded rooms, and it begins inside education itself.

The historian Raymond Callahan studied American school administration from 1910 to 1929. His 1962 book is called *Education and the Cult of Efficiency*. Taxpayers had grown convinced that schools wasted money. School leaders answered by borrowing “scientific management,” the system the business consultant Frederick Taylor had built for industry, to run their schools and budgets.

The factory language came with it, and many who used it meant it as a compliment. Larry Cuban quotes Ellwood Cubberley, a leading Stanford education professor, writing in the early 1900s: “Our schools are, in a sense, factories, in which the raw products (children) are to be shaped and fashioned into products to meet the various demands of life.” At the time, Cuban writes, the idea was “both new and admired.” Not by everyone: John Dewey, Cuban notes, argued that schooling in a democracy was for far more than preparing for the workplace.

The same decades also gave the story’s “workers” claim some real ground. After a 1917 federal law, federally funded vocational courses sorted some students toward work, in what a career-education researcher quoted by APM Reports calls “a philosophy of fitting people to their probable destinies.”

Later, Cuban writes, the affection for the factory image “shifted 180 degrees,” and a later generation of reformers turned it into an insult.

So that part of the story holds. If you have felt the cold of that idea, children as raw products, you were not imagining a thing that never existed.

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## The wrong century

The factory story isn’t simply false. It puts a true chapter in the wrong century.

> Nobody found the school day in nature. People made it, and the pieces we can date were built for other people’s problems. So every piece can be chosen again.

Look at the three pieces on your table. The grade on the workbook spine belongs to a design that grew up in the 1840s, partly borrowed from Prussia, and spread partly in place of halls that really were run like factories. The total in the corner became standard for high school because a pension fund needed a way to count preparation. The letter grade spread as high schools taught more kinds of students, and ranking stayed because colleges needed it for admission. Nothing we read shows that any of the three was built to make your child anyone’s worker.

Those were real problems. Not all of them are yours.

Chosen again does not mean thrown out. The Carnegie Foundation’s 2015 review defended its unit as a common language schools need. Tyack and Tobin traced how the graded school and the Carnegie unit lasted, while most later challenges to that grammar faded or were pushed to the margins. Pieces last for reasons. Some of those reasons may be yours too.

But they are reasons, not laws of nature. You are allowed to ask what each one is for. Historians who study this, such as Sherman Dorn, argue that the accurate history is good news: it shows schools can change, and that ours is not the first generation to try.

A kitchen table is far smaller than a school system. Whatever a school district can or cannot change, a family can look at one piece at a time.

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# Two weeks into September

Picture the same table two weeks into September. The planner has gone soft at the corners.

Before you draw the next week, you go back over the first two, piece by piece, with the pencil, and ask each one a question: who made you, and for what? And is that mine?

The number on each workbook spine belongs to a design that let a school of any size be built out of one-teacher, one-grade rooms. You have three children and one table. You keep the workbooks, because they are good workbooks. The number now tells you where the book sits on the shelf. It no longer tells you where your nine-year-old sits.

You borrow the Carnegie Foundation’s warning about its own unit and put it to the total in the corner: is this number counting time, or counting learning? Before you rule the next lines, you spend a week with a sticky note on the fridge, marking when the real work happens and when the children are only sitting.

Then the page of marks at the back. Report cards, the historians say, began as a word between teacher and family. You like that, so you choose it for your own table. At the end of each term you will write a short letter to their grandmother: what each of them can do now that they could not do when the term began. You try a first one early, after two weeks. The eleven-year-old asks to read hers before it goes in the envelope. Then she asks to add a line of her own.

You kept the first day of school, too. The children liked it: new pencils, a photo on the front step, pancakes. Nobody needs a reason older than that. Keeping a piece because it works at your table is choosing it.

The kitchen timer still goes off at 10:30. You set it because the six-year-old gets hungry, which is as good a reason as any piece of the school day ever had.

If your children are in school, the same question works at the fall conference. After the grade, you ask one more thing: what can she do now that she couldn’t do in September? It is the kind of word an early report card once carried.

One Saturday that fall, someone at the park tells you the factory story. You don’t argue. You say, “Partly. There’s a true chapter in it. It’s just in the wrong century.” Then the children call you from the top of the slide, and you go.

People made the school day. This year, at this table, you chose some of it again.

ABOUT THE WRITER

# Who wrote this, and why

My name is George Weber. My wife, Jaclyn, and I have five children, all under eleven.

My second son is Jordy. When he was seven, we sat at the kitchen table after dinner, and I asked him to explain why reading and discussion were so hard. This is a boy who will stand at a workbench for hours without looking up. He taught his little brother and sister to ride a bike, and then to use a screw gun. He builds things I could not build. That night he kept his head down. Twice, all he gave me was “I don’t know.” Then he said it:

> “I’m just not good at school.”

He was not describing a difficulty. He was describing himself.

Here is the part I would rather not say. I had seen it coming for a while. That night I was interrogating a seven-year-old for a reason he did not have, when what he was really carrying was shame. And I kept sending him, because I could not see what else to do.

For years, Jaclyn had told me the truth about the other option. She would not become the entire staff of a school with five children in it, and if we did this, I would have to free at least fifteen hours a week. She was right on both counts, and I could not find the hours. So I know the arithmetic in these essays from the inside.

Before this work, I made more than $4 million building six personal-training studios. I have stepped away from them. I have given the next twenty years to two things: helping parents make the right choice for their own children, whatever that choice turns out to be, and helping lead what I believe is a coming change in how families educate their children.

I am not an academic. The research in these essays belongs to the people named in the sources. My job was to read it carefully and tell you what it says, and what it does not. That is why every essay ends with what it does not claim.

I wrote them for the parent I was that night at the kitchen table.

**George Weber**

FATHER OF FIVE

READ NEXT

## A School Day Runs on Three Clocks. Only One Rings

If the hours in the corner of the week were the piece that caught your eye, the next essay follows where those hours go

## WHAT THIS ARTICLE DOES NOT CLAIM

- It does not claim the standard school design is wrong, or that any alternative works better, at school or at home. When nongraded elementary plans, popular in the 1950s to early 1970s, were compared with graded schools, a 1992 synthesis of those studies (abstract read) found results depended on what replaced them: small-to-moderate and moderate gains where children were regrouped across ages for more direct teaching (median effects of +.34 to +.46 of a standard deviation, a yardstick for how spread out scores are), and about no difference (+.02) where the plan leaned on individualized work.
- Every record here is about schools, mostly American public schools. No study we found tested any of this at home. What we suggest for a family is reasoning from that history, not a result.
- No source we could read dates the school bell, the fixed class period, a young child's hour blocks or rows of bolted desks, so we don't tell their origin story. The Carnegie unit dates seat-time counting for high-school credit only; likening it to a family's planner is our reading, not a finding.
- Historians still argue over how much schools were shaped to fit the workplace. Samuel Bowles and Herbert Gintis argued in the 1970s that schools mirror it; others dispute how far. Kaestle's own words, as Wikipedia reproduces them: schools were "in some respects like factories, but not necessarily because they were mimicking factories, or preparing children to work in factories." We did not trace the vocational courses after 1917, or settle what Prussia's own schools aimed at: one history of them warns that "a wide chasm separated royal edicts from their implementation."
- Watters' widely shared critique is a 2015 blog essay, and she says herself that it "isn't a definitive history."
- Several quotations reached us through another historian, a reference work, a news report or Wikipedia, not the original book. Sources says, item by item, what was read and through what.
- The Quincy School was "possibly" the first graded school in the country, not certainly. The enrollment figures do not say why enrollment grew.
- The Carnegie Foundation's 2023 announcement with ETS dates the unit to 1906 and sets out a project to measure skills instead of seat time; it is announced, not tested (†2023).
- The kitchen-table scenes and the park are composites, not a real family.

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