

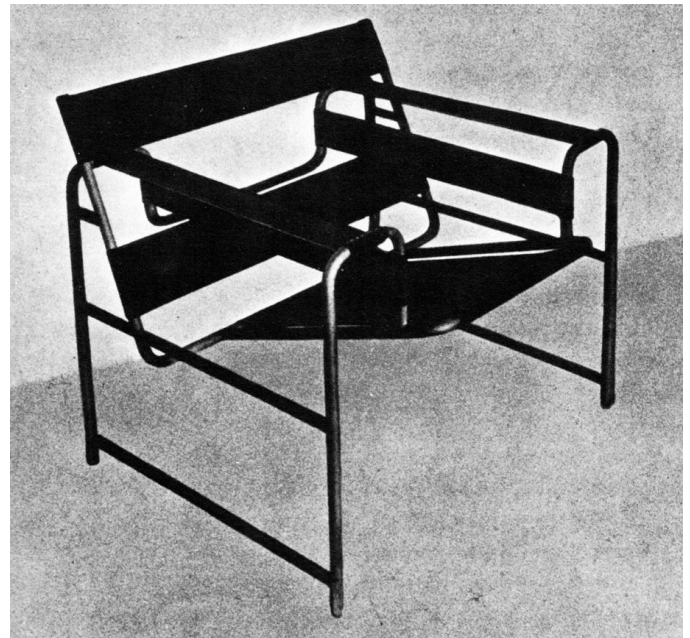
## Cars, Furniture, Architecture - How Tatra Car Seating inspired an Iconic Modernist Chair

Ivan Margolius

In the late 1920s the tubular steel in furniture design was a symbolic material representing the contemporary modern age by its lightness, cleanliness, toughness, transparency, functional expression of new ideas, technology and engineering. It was also well-suited for mass production. Its use has a well-researched history to date with a number of accounts available by Siegfried Giedion, Tim Benson, John Heskett, Otakar Máčel and others. Their research centred on the design work by Marcel Breuer of his B3 armchair (later called Wassily, 1925) and Mart Stam's cantilever chair originally proposed for his pregnant wife and first sketched in blue pencil on the back of a wedding invitation during a dinner at Hotel Marquardt in Stuttgart on 22<sup>nd</sup> November 1926. It was the occasion of a preliminary meeting between the organisers of *Die Wohnung* exhibition and the *Neues Bauen* architects involved in the design of Weissenhof Housing Estate in Stuttgart.<sup>1</sup> *Die Wohnung* exhibition was conceived by the *Deutscher Werkbund* in 1925, supervised by its then vice president Ludwig Mies van der Rohe, and built in 1927. Some of the sixteen architects invited to present their designs came up with original furnishing for the proposed houses because, apart from the classic Thonet products, there was nothing on the market to fit out their modern architecture interiors.

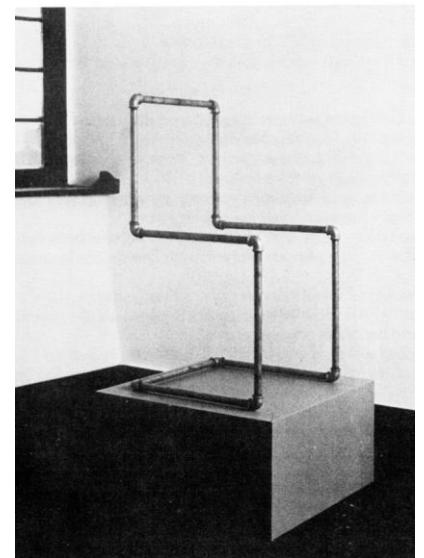
Marcel Breuer's chair design is said to have been inspired by the handlebars of his Adler bicycle he used to ride while teaching at Bauhaus as well as by the Thonet bentwood chairs, and the Gerrit Rietveld's *Roodblauwe stoel* of 1918. Initially Breuer used 20mm diameter tube, later changing to a stronger and more resilient 25mm diameter one. Stam's chair prototype was subsequently assembled using 20mm gas tubing. These designs were not the first tubular steel chair proposals. Gerhard Stüttgen of *Kunstgewerbeschule* in Cologne had shown his cantilever chair proposal at the school's exhibition early in 1924, but this was soon forgotten and only a post-dated sketch exists.

Ferdinand Kramer, a German architect and designer, described his trip with Stam in 1926 to attend the meeting about the Weissenhof Housing Estate at the Marquardt Hotel (Stam was asked to



*Above: Marcel Breuer, B3 first prototype tubular steel chair, 1925.*

*Right: Mart Stam, Cantilever chair in gas tubing, 1926, recreated 1985.*



design three houses, numbers 28-30, for the estate, as well as their fixtures, all to be completed within a year). Apparently, according to Kramer's account, as told to John Heskett, they arrived together in a Hanomag car and as Stam was alighting from the rear seat, he was struck by the front tubular steel folding seat. He said: 'One should build a chair like that.'<sup>2</sup> However, in 1926 Hanomag was manufacturing the small rear-engined *Kommisbrod* model which had only two fixed front seats, made using a wooden frame.

<sup>1</sup> Axel Bruchhäuser, *Der Kragstuhl*, Berlin: Alexander Verlag, 1986, p 127 and Otakar Máčel, 'Avantgarde-Design und Justiz', in Stanislav von Moss & Chris Smeenk, *Avantgarde und Industrie*, Delft: Delft University Press, 1983, p 150.

<sup>2</sup> There are variations of this story, see for example: *Der Kragstuhl*, p 90: location mentioned here is Frankfurt rather than Stuttgart; *Ibid.*, note 13, p 123; J. Heskett, 'Germany: The Industrial Applications of Tubular Steel', in Barbie Campbell-Cole & Tim Benton, *Tubular Steel Furniture*, London: The Art Book Company, 1979, p 23.

And the image published by Adolf Gustav Schneck<sup>3</sup> of the seat apparently seen shows the occasional cantilever *flat* steel-framed folding seat made by Christian Auer Company of Bad Cannstatt at the time normally fitted as a middle set of seats to six-seater limousines.<sup>4</sup> Stam must have seen a tubular steel seat to think of making a chair from the same material and Kramer must have been mistaken in the car they had used.

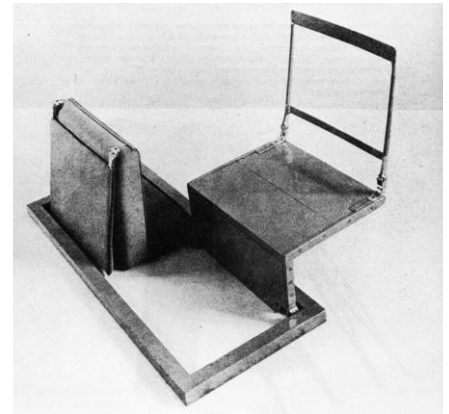
Initially tubular steel was used in the construction of aircraft, ships, bicycles, motorcycles, cars (the first 1886 Benz Patent-Motorwagen had a tubular steel frame) and in architecture often for railings and balustrades. It was a strong, stable and lightweight material perfectly suitable for its purpose; the tube's rigidity is proportional to the square of its diameter. The seamless tube manufacturing process was invented in 1885-6 by Max and Reinhard Mannesmann in Germany. Then followed the development of processes to shape, weld and bend tubes without them distorting, splitting or losing their strength, which led to the material to be used in other manufacturing fields.

Mathias Schwartz-Clauss in his piece on the history of the Wassily chair<sup>5</sup> wrote: 'Steel tubing was first used for hospital furniture from about 1890, for car seats by the Czech manufacturer Tatra starting in 1919, and for airplane seats in the Fokker planes from 1924.'

Czechoslovakia, the faraway country of 'people of whom we know nothing', was between the wars an advanced industrialised country with intelligent leadership and a well-educated workforce eager to keep up with all new ideas and inventions. The country was home to a number of automobile manufacturers including Tatra, Škoda, Aero, Wikow, Walter and others. Tatra, previously called Nesselsdorfer, was the oldest Czech automobile concern, being the third in the world behind Daimler-Benz and Peugeot in continuous production. The company had as the main designer and technical director the Austrian-born Hans Ledwinka (although his father Anton was from Moravia), who was always keen to keep the design of Tatra automobiles ahead of its competitors.

Tatra pioneered the use of tubular backbone chassis with swing half-axles, air-cooled engines starting in 1921 and aerodynamic streamlined car bodies beginning in 1932. The tubular type chassis may have led to the use of tubular type seating. Prior to 1921 Nesselsdorfer/Tatra automobiles

Right: Christian Auer Company, Occasional car folding chair, 1920s



Below: Mies van der Rohe's MR20 armchair, 1927.



followed fairly conventional design principles and were valued for their well-built construction and quality. The 1921 turning point was Ledwinka's affordable 'people's car', the model Tatra T11, with tubular steel chassis (110mm diameter), front air-cooled two-cylinder engine and rear swing half-axles that came into production in 1923. It had various body types and its seating was conventionally constructed using wooden frames and cloth, leather or faux leather upholstery. In 1925-26 this model was followed by Tatra Type 12. This car had a more powerful engine and brakes on

<sup>3</sup> A.G. Schneck, *Der Stuhl*, Stuttgart, Hoffmann 1928, p 50, fig 87.

<sup>4</sup> Otakar Máčel in 'The Continuous Line of Sitting', *Rassegna* 47/3, September 1991, p 51 mentions Mercedes or Hanomag cars. Mercedes-Benz of that time, the six-seater Typ 'Stuttgart' 1926 had the same Chr. Auer folding seats in the middle, and not a front seat made out of tubular steel!

<sup>5</sup> Alexander von Vegesack, *100 Masterpieces from the Vitra Design Museum Collection*, Weil am Rhein: Vitra Design Museum, 1996, p 212.

all four wheels.

However, in contrast to the previous model, in the four-seater, two-door saloon version, cantilever (!) 30mm diameter nickel plated tubular steel framed seats covered with stretched, patterned fabric with innovative folding back-rests, allowing access to the rear seats, were installed - probably the first such case in automobile design in Europe and the rest of the world, which truly fulfilled the Bauhaus designers' notion of a sitter suspended in pure space, but this time in a 'room' on the move. Schwartz-Clauss is correct in naming Tatra but the year should be 1925 or 1926.<sup>6</sup>

So, was it the Tatra T12 that took Kramer and Stam to the meeting about the Weissenhof Housing Estate and inspired Stam to take the leap from an automobile cantilever seat to his famous domestic cantilever chair design? As mentioned above, Tatra designers based in Kopřivnice, Moravia, followed closely the progress in design ideas in the world and received foreign books, magazines and newspapers, and kept themselves fully up-to-date, as is reflected in their innovative products output. Bauhaus was a movement well-known to Czech architects and designers and it was possibly the Breuer B3 chair that inspired Tatra to install tubular seating in its model T12; but Tatra was bolder than Breuer by designing an elegant, advanced cantilever seat aiming to keep the driver and passenger in comfort by allowing its two-legged frame to be stiff enough but also to flex while traversing the rough Central European roads, which from there on many automobile manufacturers copied.

There were a number of tubular steel frame furniture manufacturers in Czechoslovakia such as Vichr a spol., Mucker-Melder Werke, Hynek Gottwald, UP Závody, SAB that from 1928 started producing various types of tubular steel furniture including designs by Breuer and Stam as well as by Czech avant-garde architects Jaromír Krejcar, Karel Honzík, Oldřich Starý and Ladislav Žák and designers Jindřich Halabala, Jan Hesoun, Karel Ort and others.

However, why did Stam, after apparently having seen the sleek design of the Tatra car seat, produce the sketch for his clumsy-looking cubic form cantilever chair later named model S33? Mies's assistant Sergius Ruegenberg said in 1985: 'Mies came back from Stuttgart in November 1926 and told us about Mart Stam's idea for a chair. We had a drawing board on the wall and Mies drew the

Stam chair on it, right-angled, beginning from the top. He even added the fittings and then said: "Ugly, those fittings are really ugly. If only he'd rounded them off – there, that looks better," and he drew a curve. A simple curve by his hand over the Stam sketch had made a new chair out of it!"<sup>7</sup> Stam had an aversion to curved forms<sup>8</sup> that stopped him developing the tubular steel chair design to a sufficient level of elasticity truly suited to the tubular material.

Tatra in Czechoslovakia not only forged forward with innovative streamlined bodies based on Paul Jaray's patents, backbone chassis, swing axles, front and rear air-cooled engines from two-cylinder to V8, V12 petrol and diesel motors but also in the design of car interiors with all-metal dashboards by continuing the body skin inside the car on aircraft principles, but also by creating cantilever nickel and later chromium plated tubular steel seating with folding back-rests, which most probably were the true inspiration to modern furniture designers. A lesson for future design historians: when searching for inspiration, probe deeply into all possible fields of the transfer and cross-pollination of ideas.



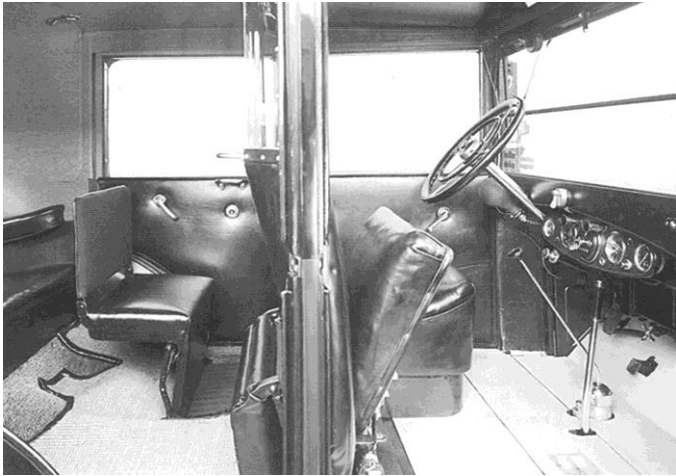
*Tatra T12  
from 1926.  
See more  
photographs  
on page 8*

**Ivan Margolius** is an architect and author of memoirs and books on art, architecture, engineering, design and automobile history. Ivan was born in Prague, studied architecture at the Czech Institute of Technology in Prague, and at The London Polytechnic following his arrival to the United Kingdom in 1966. He practised architecture at Foster and Partners, Skidmore, Owings and Merrill and Yorke Rosenberg Mardall and collaborated on a number of projects and books with Future Systems. Ivan owns a 1949 Tatra T600 Tatraplan automobile. His mother, Heda Margolius Kovály, is the author of highly acclaimed book of memoirs *Under a Cruel Star* and a crime novel *Innocence*.

<sup>6</sup>Confirmed by Tatra Museum archivist Karel Rosenkranz to Ivan Margolius, 10/02/2015.

<sup>7</sup>MR10/20, *Der Kragstuhl*, p 51.

<sup>8</sup>J.B. Bakema, *L.C. van der Vlugt*, Amsterdam: J.M. Meulenhoff, 1968, p 16; Otakar Máčel, 'The Mannesmann Case', *Rassegna* 14/2, June 1983, p 33.



*Top left: Six-seater Mercedes-Benz Typ Stuttgart, 1926 with folding chairs*

*Top right, Tatra T12, 1926 with cantilever nickel plated tubular steel folding back chairs. (Tatra Archiv)*

*Main picture: Four-seater two-door limousine Tatra T12, 1926. (Photos Peter Visser)*

*Left: Tatra T87, the best known Tatra streamlined model made from 1936 to 1950*