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Author(s): Paul Overy

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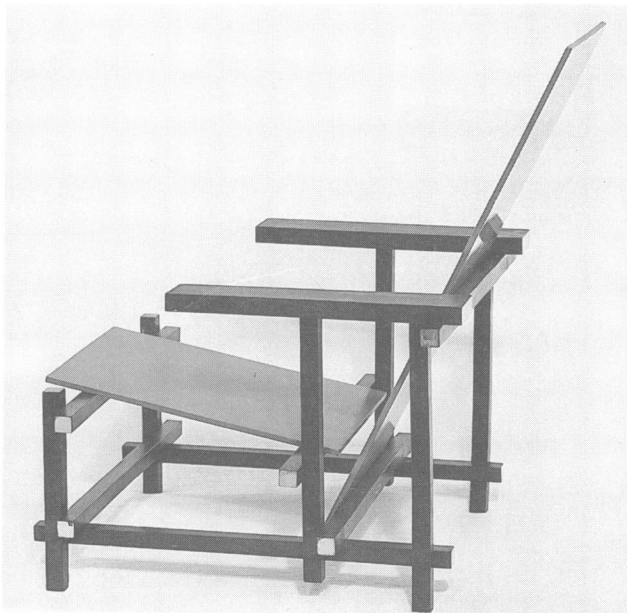
Carpentering the Classic: A Very Peculiar Practice. The Furniture of Gerrit Rietveld¹

While that which is merely 'stylish' will soon become outmoded, that which is modern preserves a secret tie to the classical. Of course, whatever can survive time has always been considered to be a classic. But the emphatically modern document no longer borrows this power of being a classic from the authority of a past epoch; instead, a modern work becomes a classic because it has once been authentically modern.²

Rietveld's furniture is often considered as an attempt to 'reinvent the wheel'. It is argued here that rather than a collection of eccentric oddities, Rietveld's furniture was closely concerned with the idea of evolving new types for new methods of production. Rather than an 'impasse' from which chair design was 'rescued' by Mart Stam and cantilever tubular furniture,³ the Red Blue chair [1] and related pieces were a 'deconstructivist' exercise that was to precede the development of new types for multiple production.

Rietveld regarded such works at the time as experiments or 'studies' which would feed into his

'regular' work. Ideas first tried out in his 'experimental' furniture were adapted to batch or multiple production in the 1920s and 1930s. Coming from a background where both hand and machine methods were used (in his father's workshop where he worked from the age of eleven), Rietveld began to design furniture at a time when portable and hand electric woodworking machinery was being introduced. This made it possible for small workshops to compete with furniture produced in factories, at least in working for a new younger professional clientele with 'advanced' ideas which was developing in Holland in the early twentieth century. Thus



1 Red Blue chair (Stedelijk Museum, Amsterdam)

Rietveld's early furniture combines elements derived from hand production with those appropriate to machine cutting and assembly in quantity. It is this which gives it its characteristic qualities.

Rietveld's later furniture differs from his early experimental pieces like the Red Blue chair in that it is more precisely designed with production processes in mind which would enable the furniture to be made in quantity. However, the development was neither linear, nor consistent and there is a constant interplay between ideas derived from craft practice and developing machine production.

Some of Rietveld's chair designs were produced both by hand *and* machine methods. For example, the Zig-zag chair (1932–4) was hand-made by Rietveld's assistant Van de Groenekan in hardwood [2]. (The first examples were made for the Schröder house.) Softwood versions were manufactured and sold by the furniture store Metz from 1934 until the 1950s, and the chair has been in production again—or reproduction—since 1972 by Cassina and more recently by Alivar, who make them from fine hardwoods.

A drawing by Rietveld for a price list for a model room for an exhibition (c. 1923), recently discovered in the Rietveld Schröder Archive, suggests that the Red Blue chair was both hand-made and batch-

produced in a similar way during the early 1920s. This and other related pieces of furniture designed by Rietveld appear to have been manufactured for sale by a Utrecht furniture-making firm, Cvt Hullenaar.⁴ The Red Blue chair could also be purchased in better quality finish and materials (probably hardwood rather than softwood) through an art dealer in the centre of Utrecht. (This version was presumably made in Rietveld's workshop.)

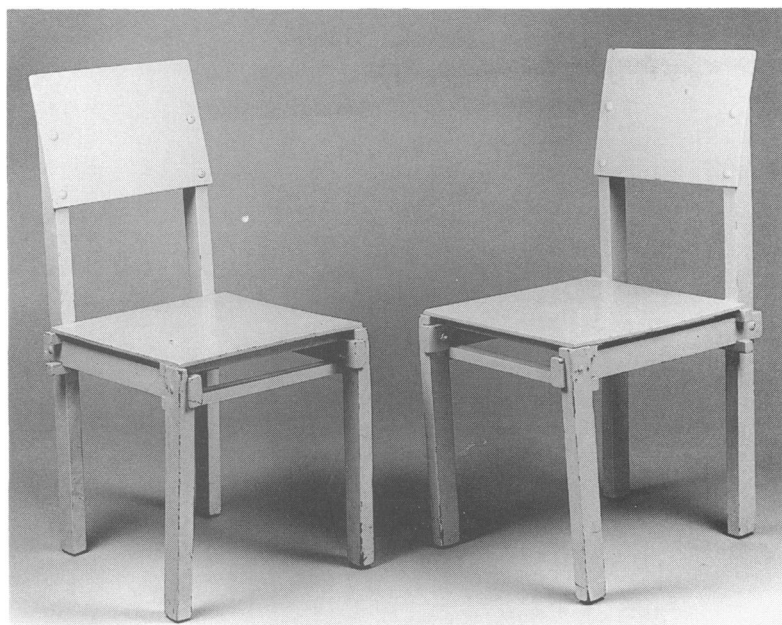
In 1923 Rietveld designed what came to be called the Military furniture [3]. This was originally commissioned in 1923 for a soldiers' home in Utrecht.⁵ The quantity was too large to be produced in Rietveld's workshop and the order was executed by a furniture manufacturer, perhaps by the same firm of Cvt Hullenaar. In the design of these pieces made for relatively large scale production Rietveld modified the famous 'Rietveld joint': the crossing joint, or 'Cartesian node' where the elements extend past the point of junction.⁶ The wooden rails under the seat of the chair and stool and the top of the table still extend past the joint, but not so far as in the earlier furniture, and are partially let into the legs, making the construction sturdier [4–5]. The rails are 'doubled up' under the seat so that the joints can be effected by means of metal bolts, which are deliberately left visible, unlike the concealed peg and hole, or dowel construction used in pieces such as the Red Blue chair and the Buffet first made around 1918–19.

These modifications were clearly connected with the fact that these pieces were to be produced in quantity and in order to withstand the harder wear they would receive in an institution. They also enabled the furniture to be easily taken to pieces, or to be delivered flat and assembled by the purchaser, anticipating the Crate furniture (1934) which was sold as self-assembly furniture for summer-houses and students' rooms [6]. The Military chair and stool/table could also be ordered from Rietveld's workshop and continued to be made by Van de Groenekan, to whom Rietveld handed over his furniture-making workshop in 1924 in order to concentrate on architectural and interior design.⁷

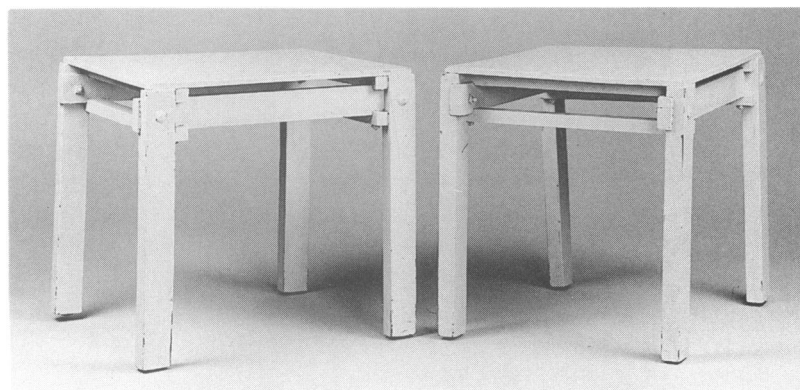
When a number of Rietveld's earlier pieces were used in 1920 to furnish a model flat in a council block in Rotterdam designed by J. J. P. Oud, Rietveld wrote to Oud that he regarded these as 'studies' which might perhaps feed into his 'regular' work.⁸ Above all, he told Oud, do not let them be forced on anyone.



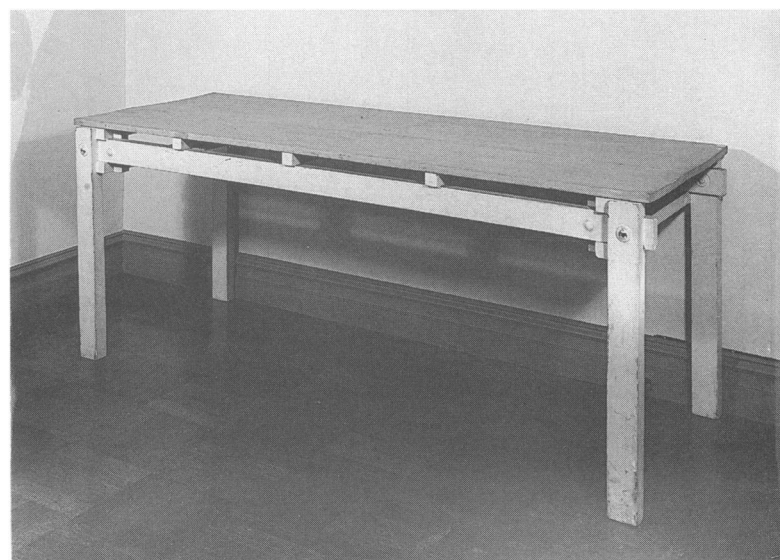
2 Zig-zag chair, c. 1934 (Stedelijk Museum, Amsterdam)



3 Military chairs, designed 1923; oak and plywood painted white (originally green)



4 Military stools/tables, designed 1923; oak and plywood painted white (originally green)



5 Military table, designed 1923 (Centraal Museum, Utrecht)



6 Crate chair, designed 1934 (Stedelijk Museum, Amsterdam)

As far as is known none of the tenants bought any of the furniture.⁹

Frits Bless has used the distinction Rietveld makes in this letter to represent two aspects of his career, although in this particular instance he is less concerned with Rietveld's furniture design than his architectural work, which he sees as dividing into two phases, the early 'experimental' period before 1925–6 and the later more 'functional' period.¹⁰ In the following discussion of the design and production of Rietveld's furniture I want to argue for a more complex interaction between the 'experimental' and the 'regular'.

In 1920 Rietveld's 'regular' work probably continued to be quite conventional furniture of the kind he had made when working in his father's workshop, but by 1923 it was represented by designs like the Military furniture (and, as noted above, even the earlier 'experimental' pieces were apparently being manufactured in quantity for sale). The distinction between experimental and regular work Rietveld made in 1920 continued throughout his career as a furniture designer, although around 1932–4, with the Zig-zag and Crate furniture, experiment and regular production for quantity intersect in an intriguing way.

In this article I want to examine the development of Rietveld's furniture between the Red Blue chair (c.

1918) and the Crate furniture (1934). Rietveld continued to produce furniture designs until shortly before his death in 1964. (The Steltman stool was designed for a jeweller's shop in The Hague in 1963.) Many of the pieces designed during the last thirty years of his life are equally worthy of discussion, but for reasons of space and the integrity of the argument I do not propose to discuss these here.

Since Daniele Baroni's book on Rietveld furniture was published in 1979, many forgotten designs and variants on known designs have come to light, and many of these have been exhibited and documented. In the early 1980s a monograph on Rietveld by Frits Bless, and a catalogue for an exhibition of early Rietveld furniture at the Centraal Museum in Utrecht by Marijke Küper appeared, both based on extensive archival research. After Truus Schröder's death in 1985, the Rietveld Schröder archives were catalogued by Marijke Küper, and many new drawings and documents discovered.¹¹ In the late 1980s, as many of Rietveld's early clients died or their estates were sold off, numerous examples of his early furniture, including many variants and unusual pieces came on the market. (These were mainly auctioned by Christie's and Sotheby's in their Amsterdam branches.) The prices commanded by these early pieces are now so high that most have been sold to collectors and dealers in the USA.¹² The Victoria and Albert Museum, however, recently purchased an early unpainted example of the Red Blue chair. Hopefully, the Rietveld retrospective exhibition planned for 1992 by the Centraal Museum (to be shown also in the USA and Japan), will make many of these little known designs and early variants more widely known [7].

Furniture and Architecture

Many twentieth-century architects have designed furniture. This may be because they have felt that only their own designs were suitable for (or worthy of) their interiors, or because they wanted total control over the environments they designed. The majority of these designs have been chairs. In buildings designed by modernist architects the modern chair has frequently been produced as both metaphor and metonymy for the human body, a mediation between the body and architecture. In architectural photographs or perspective drawings of



7 Two armchairs; deal, black painted, c. 1919. The chair on the left belonged to Rietveld himself. The chair on the right has narrower arms than most versions and rectangular side pieces under the arms. These are different from those in the chair illustrated in *De Stijl* which had asymmetrically shaped side pieces (see fig. 12)

interiors, these architect-designed chairs often serve as 'stand ins'—or rather 'sit-ins'—for human beings, representing 'abstracts' of the bodies which are presumably intended to use and inhabit them.

Like Marcel Breuer and Mies van der Rohe, Rietveld came to architecture from furniture design, rather than vice versa, and is often mythologized as a simple and naïve craftsman turned architect, for example by Daniele Baroni: 'Rietveld the man and his psychology are simple. Although he participated in avant-garde movements, he was never a propagandist but, rather, a patient builder who left it to others to formulate dogma.'¹³ And according to Martin Filler: 'Simple and unpretentious, taciturn but kindly, principled but undogmatic, thoughtful but not bookish, inventive but essentially pragmatic, this cabinet-maker son of a cabinet-maker was one of those apparently intuitive artists who, like Paul Cézanne or Jackson Pollock, seemed to rise up unheralded from the mysterious sources of spontaneous genius.'¹⁴

Although Rietveld left school at eleven to work in his father's furniture and shop-fitting workshop, he studied drawing, design and architecture at evening classes and as a pupil of the architects P. J. Houtzagers and the architect and furniture designer P. J. C. Klaarhamer, some of whose furniture designs he later executed [8–9]. Such a training was not unusual for aspiring architects at the turn of the century either in Holland or elsewhere. Nevertheless, in his approach to design Rietveld did preserve something of what Peter Smithson has called his 'manual intuition'.¹⁵ This was clearly derived from

his early experience and training as a furniture maker and shopfitter.

Rietveld also worked for a time for a jewellery firm and designed cutlery and graphics. He also painted as a young man and was commissioned to produce a posthumous portrait of Cornelis Begeer, the father of the director of the jewellery firm for which he worked. His paintings were shown in 1912 at an art exhibiting association in Utrecht where Mondrian and Bart van der Leek also showed their work. Rietveld was a member of this art association



8 P. J. C. Klaarhamer, Armchair, 1915; oak. Rietveld executed some of Klaarhamer's furniture, including this piece, a chair without arms and the buffet (fig. 9) (Centraal Museum, Utrecht)



9 P. J. C. Klaarhamer, Buffet, 1915, executed by Rietveld (Centraal Museum, Utrecht)

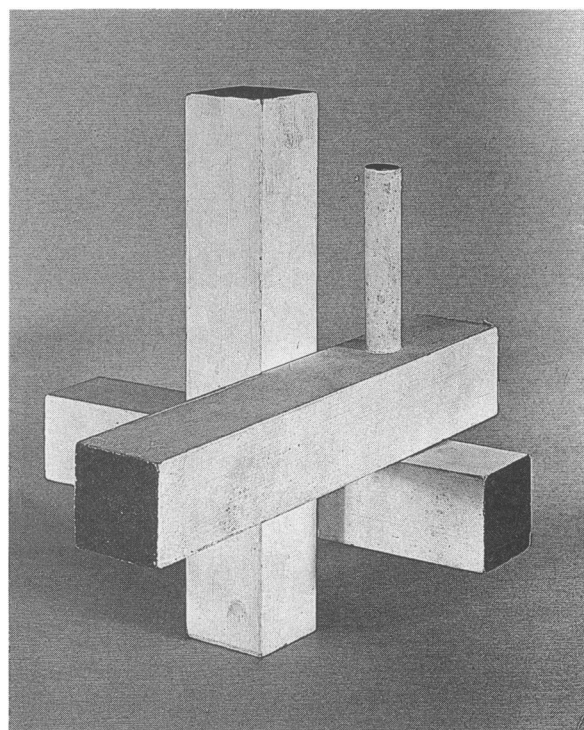
Kunstliefde from 1911, when he was in his early twenties. It was patronized by the professional classes of Utrecht and he found many of his early clients here (Mrs Schröder's lawyer husband was a member). The association had a library where Rietveld would have been able to read the latest art and design magazines from Holland, France, Germany, Britain and other European countries. He seems to have given up painting—at least professionally—after 1912, and concentrated on furniture making and design (and later interior design and architecture), probably for economic reasons. He had married in 1911 and the first of his six children was born in 1913.¹⁶

Red Blue Chair

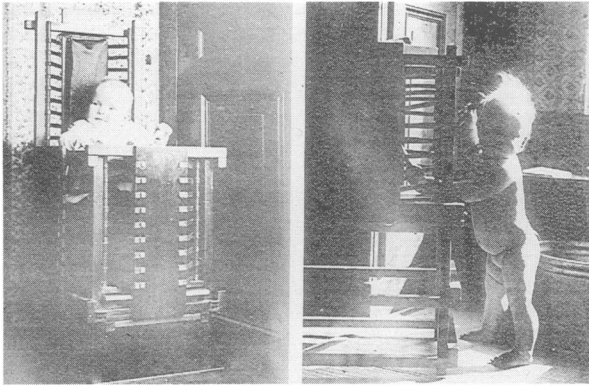
The Red Blue chair has been constructed in art and design histories as the 'iconic' artefact of De Stijl and early twentieth-century modernism. Martin Filler has written of the chair: 'This remarkable design can rightly be called the central artifact of De Stijl, and one would be hard pressed to cite a comparable

example in the whole history of design of theory induced by a "minor art" object.¹⁷ In fact the 'centrality' of the Red Blue chair was only constructed much later, after Van Doesburg's death when De Stijl had already been inscribed into art and design histories. Rather, it was a cluster of designs based on the constructional principle of the 'Rietveld joint', or 'Cartesian node', which first brought Rietveld to prominence as a furniture designer [10].

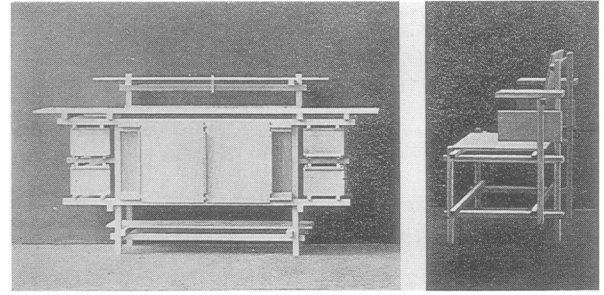
The Child's chair (c. 1918)—in which the 'Rietveld joint' is not yet fully developed—was the first piece of his furniture to be reproduced in *De Stijl*, in July 1919, with a note by Rietveld himself [11].¹⁸ The prototype Red Blue chair, unpainted, and with additional asymmetrical side pieces under the arms [12], was first illustrated in the September 1919 issue with a short commentary by Van Doesburg.¹⁹ In the



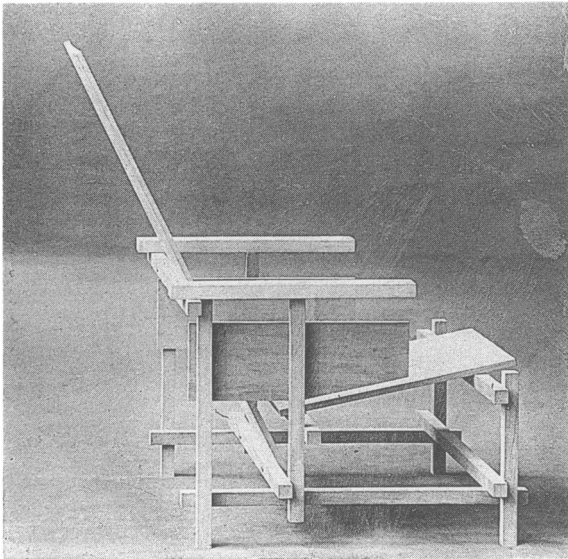
10 Model of 'Rietveld Joint' used in making the Red Blue chair, the Buffet and other early experimental pieces designed by Rietveld c. 1918–19. The round piece represents the dowel or peg used to join the rectangular listels together. The model was made by Rietveld in the 1950s to demonstrate the construction of his early furniture, probably for the retrospective exhibition of his work in 1958 at the Centraal Museum, Utrecht, to whom the model belongs.



11 Child's high chair, 1918, designed for the architect H. G. J. Schelling for the use of his young daughter. The wooden frame was painted green, the leather stained red. The chair was illustrated in *De Stijl* in July 1919 shown from three viewpoints (vol. 2, no. 9, pl. XVIII)

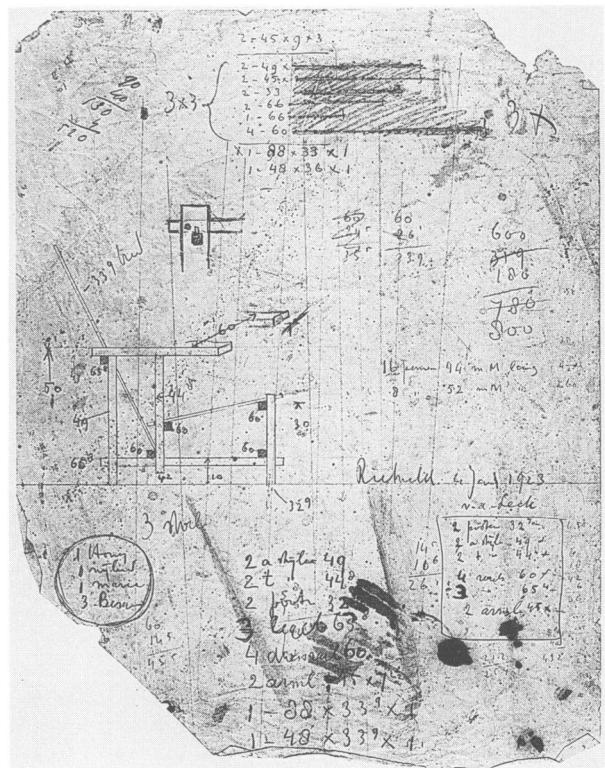


13 High Back chair and Buffet, both designed c. 1919, as reproduced in *De Stijl* in March 1920 (vol. 3, no. 5, pl. VII). The buffet was bought by the architect Piet Elling and later destroyed in a fire. Whereabouts of the chair unknown



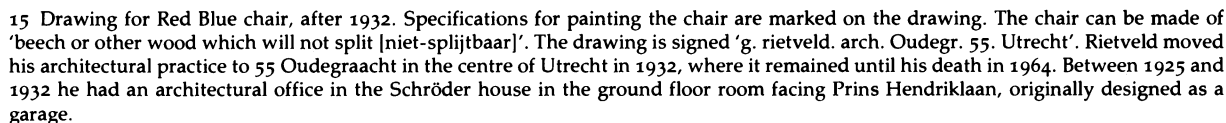
12 Armchair (prototype for the Red Blue chair), designed c. 1918. This photograph was illustrated in *De Stijl* in September 1919 (vol. 2, no. 11, pl. XXII). The whereabouts of this particular version are unknown, if indeed it still exists.

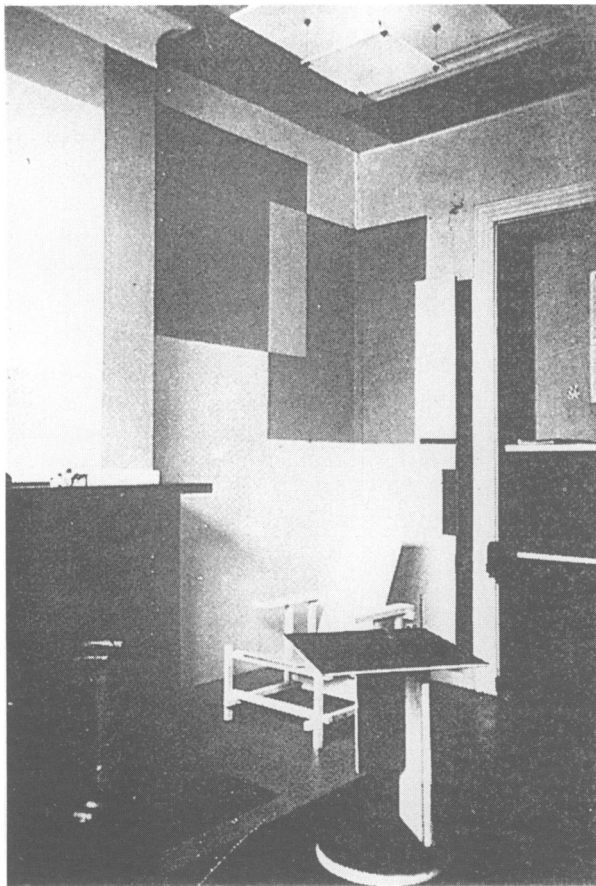
March 1920 issue Van Doesburg reproduced the High Back chair (1919) and the Buffet together [13].²⁰ It was this chair and not the Red Blue which he compared with the De Chirico's painting *Solitude* in a commentary laid out like poetry in the same issue.²¹



14 Drawing for Red Blue chair, signed and dated on drawing 'Rietveld 4 Jan 1923' (Rietveld Schröder Archive, Centraal Museum, Utrecht). There are no specifications for colour in this drawing. (Compare fig. 15.)

16].²³ By contrast, in the post-war De Stijl retrospectives held at the Stedelijk Museum, Amsterdam, the Museum of Modern Art, New York, and the Venice Biennale, in 1951–2, the Red Blue was shown alongside a selection of other early ‘experimental’ pieces, including the Buffet, which had never been exhibited before, apart from when the prototype was used to furnish Oud’s model flat in Rotterdam in 1920.²⁴



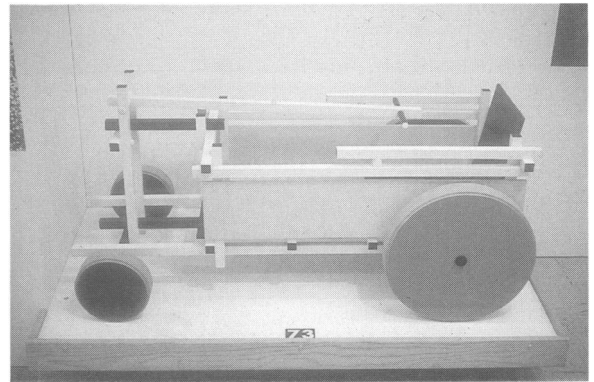


16 White painted Red Blue chair, c. 1924, made for a redesigned music room in the house of the avant-garde writer Til Brugman in The Hague. Between 1926 and 1928 the German artist Hannah Hoch lived with her and used the music room as a studio. The colour design of painted rectangles on the wall was by the Hungarian-born De Stijl artist and designer, Vilmos Huszár. An End table (designed 1923) can be seen in front of the white chair. It appears to be painted in primary colours. Another contemporary photograph of this room shows cushions on the chair

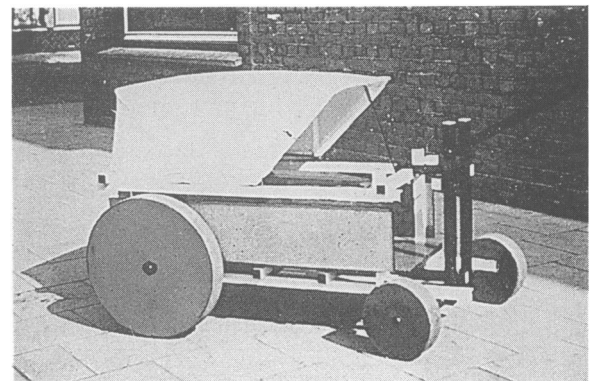
Children's Toys

Most of the early experimental pieces based on the Rietveld joint seem to have been designed around 1918–19. The year 1923 was also a particularly productive period of Rietveld in terms of new furniture designs [17]. The pieces designed at this time can be divided into three groups: 'experimental', 'regular' and 'toys'.

The Child's cart seems first to have been produced in 1923 [18], when it was made up from a drawing



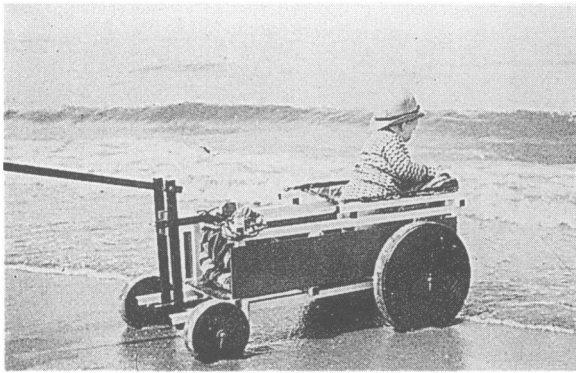
17 Child's cart, probably designed in 1923. This example was made by Rietveld's assistant Gerard van de Groenekan in the late 1950s. (Brian and Margaret Housden Collection, London)



18 Child's cart, with hood erected, Utrecht c. 1923

by Rietveld in the factory of the Utrecht furniture manufacturer N. V. v/h B. Middelbeek for the young son of the managing director, J. R. Hoogezand,²⁵ The construction of the cart [19], which is based on the 'Rietveld' joint like the experimental furniture of c. 1918–19, suggests that this design may be from four or five years earlier (although it is also possible that it could be a *retardataire* example of Rietveld's early experimental style) [20].

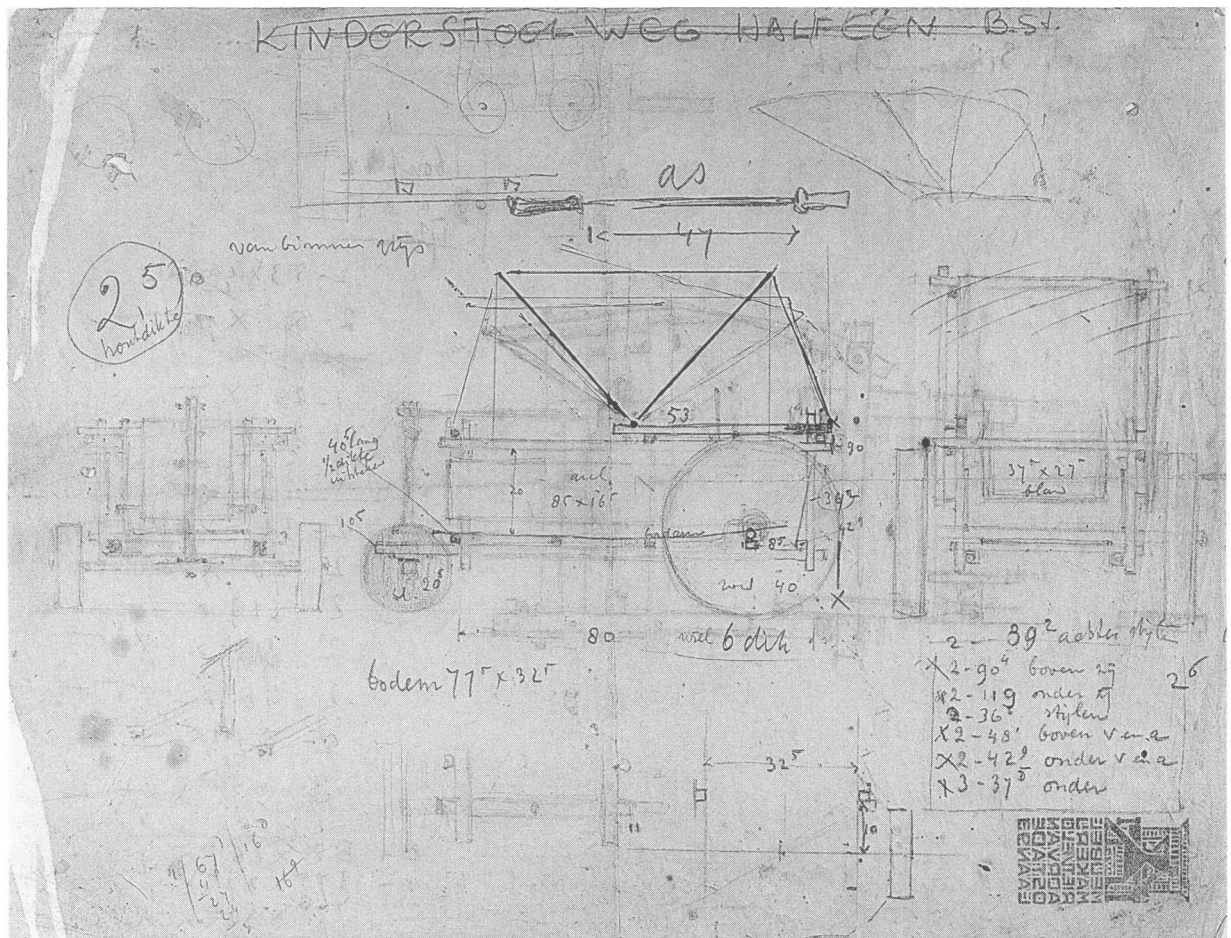
The Child's wheelbarrow, on the other hand, is designed according to rather different principles [21]. It is constructed from primary forms (rectangles, triangles and circles) painted in primary colours. This may have been suggested by De Stijl practice and theory. Van Doesburg had begun to



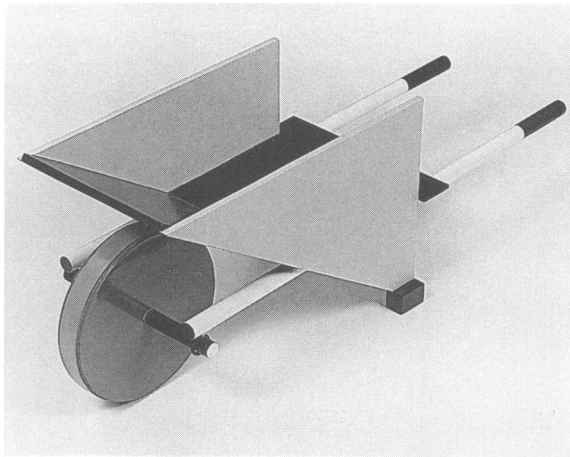
19 Child's cart, on the beach, Zandvoort, 20 July 1925. The child in the cart is the son of J. R. Hoogezand, who had the cart made up from Rietveld's drawings in his furniture factory, N. V. v/h B. Middelbeek, Utrecht

introduce diagonal elements as well as rectangles into his designs for the colour schemes for the young Dutch architect Cornelis Van Eesteren's diploma project for a hall for Amsterdam University in summer 1923. Rietveld himself had painted a large red circle as a 'decoration' on the wall of the surgery which he had designed for Dr Hartog in Maarssen in 1922 [22]. Or it could have been derived from the forms of the geometric blocks used in educational toys at the time.

The play element in education was emphasized in the educational ideas of Froebel, Steiner and Montessori which were popular among 'advanced' young professional people in Holland, as elsewhere in continental Europe at this time. It was from this class fraction that Rietveld's early clients were



20 Drawing for the Child's cart, showing hood, c. 1923 (Rietveld Schröder Archive, Centraal Museum, Utrecht)



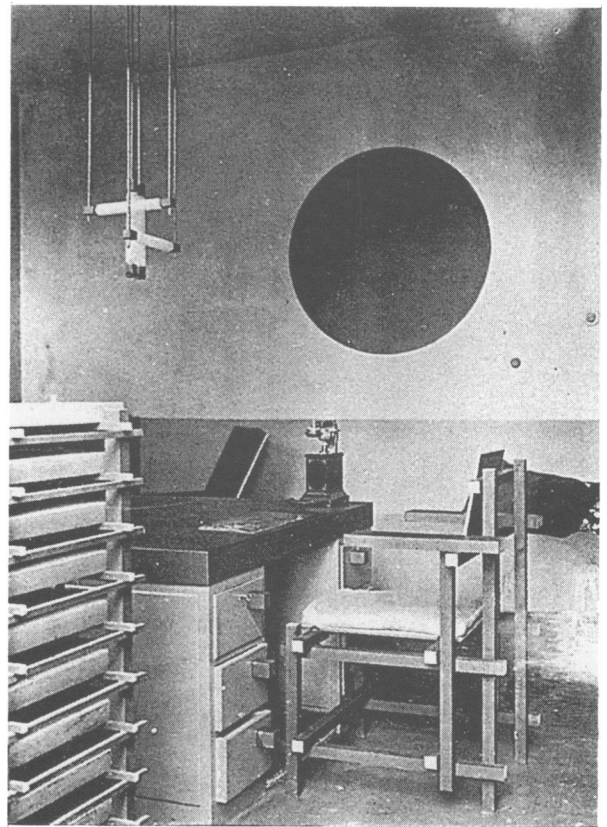
21 Child's wheelbarrow, designed c. 1923 (Stedelijk Museum). This example was made by Van de Groenekan in the early 1970s

drawn. Part of the Schröder house was used for a while in the mid-1930s as a Montessori school. The theories of play of Johan Huizinga were well known in Holland at this time from articles and lectures, although not published in book form as *Homo Ludens: A Study of the Play Elements in Culture* until 1937.²⁶

The primary forms and colours in the wheelbarrow are very similar to those used in Peter Keler's cradle designed at the Bauhaus in 1922, and to the geometrical elements and primary colours employed in Kandinsky's teaching in the *Vorkurs* there, which were also the subject of the questionnaire about correspondencies between primary forms and colours which Kandinsky circulated among staff and students in 1923.²⁷

End Table and Berlin Chair

Rietveld's 'regular' work designed in 1923, the Military furniture, has already been discussed. The 'experimental' pieces of this year, the End table [23] and the Berlin chair, are the most formal, sculptural and architectural examples of furniture that Rietveld designed. However radical and 'deconstructive' to use a word not coined at the time—the earlier 'experimental' pieces based on the 'Rietveld joint' might seem, they remained symmetrical. The End



22 Surgery designed for Dr A. M. Hartog, Maarssen, 1922. The chair in front of the desk is the High Back chair (see fig. 13). The back of a Red Blue chair can be seen behind the desk, to the left of the telephone; it appears to be painted

table and the Berlin chair, however, were radically asymmetrical. Asymmetry was one of the major formal and ideological tenets of modernist architecture in the 1920s and 1930s, particularly in the development of the International Style. It was important in De Stijl visual ideology from the beginning, where it was applied to designed artefacts and paintings as well as buildings. The architect and furniture designer Jan Wils had published an article on 'Symmetry and Culture' in *De Stijl* in 1918, in which he described how symmetry progressively decreased from the natural to the cultural, man-made artefact. Wils himself was to design some radically asymmetrical furniture in the early 1920s.²⁸

The architectural qualities of the Berlin chair and



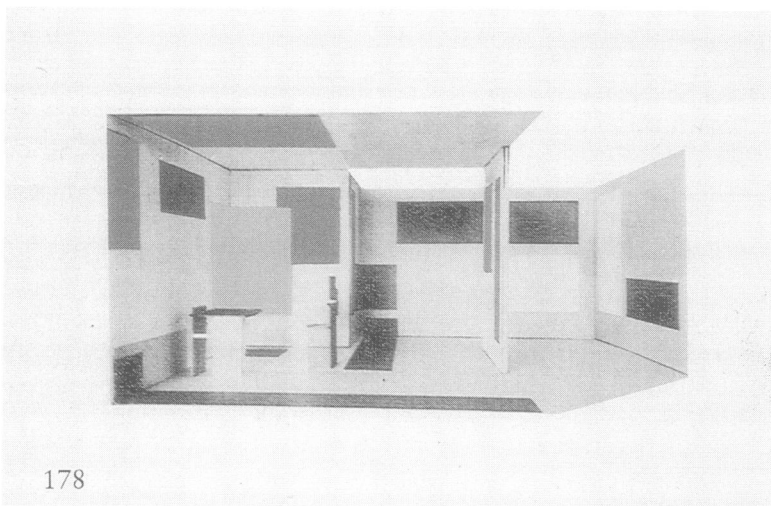
23 End table, designed 1923. From the De Stijl exhibition (Stedelijk Museum, Amsterdam and Kröller Müller Museum, Otterlo 1982). The blown-up photograph to the left of the table (in which the table can be seen in the interior of the upper floor of the Schröder house) is from a coloured drawing prepared by Han Schröder for the 1951–2 De Stijl exhibitions shown in Amsterdam, New York and Venice. Han Schröder, Truus Schröder's daughter, trained as an architect and worked in Rietveld's office in the 1950s

the End table have often been noted. They were designed shortly before Rietveld began work on the Schröder house in collaboration with his client Truus Schröder, at a time when he had recently been working on shop-front conversions and interiors and was becoming increasingly involved in architectural design. Both were used to furnish the house. The Berlin chair was originally designed for

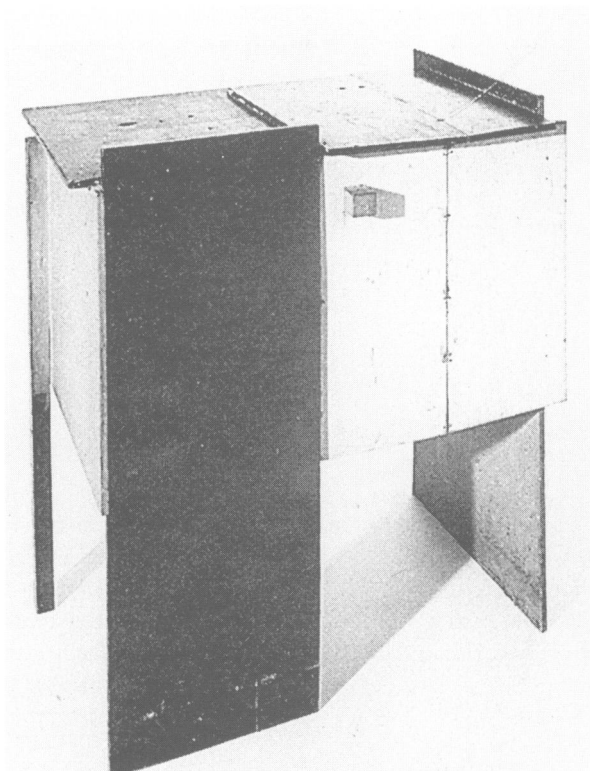
a model interior for an exhibition in Berlin which seems to have only been realized as a maquette. The interior, with colour design by the Hungarian De Stijl painter Vilmos Huszár, was what would today be described as an 'environmental work', closer to fine art than to design, conceived as a space to be experienced by the viewer moving *through* it.²⁹ Rietveld's Berlin chair and the accompanying table-like structure visible in the model (but unlike the Berlin chair never realized full size³⁰) were clearly intended more as spatial structures—half way between sculpture and architecture—than as functional furniture to be used [25].

Although highly formal in their design both the Berlin chair and the End table are not entirely unfunctional. The heavy round base of the table slides conveniently under a sofa or day bed. The broad armrest of the chair can accommodate a book, a glass or even a small meal. However, one senses that in these works the form was arrived at first and then a function devised to fit it. Many years later Rietveld said of the work of his De Stijl period: 'To me, De Stijl represented a unit of construction and space-defining elements which I considered of prime importance. A practical realization was not always feasible. Function was for me a thing by itself which I never overlooked, it is true, but it did not come into play until the construction and spatial exercises in De Stijl had been completed.'³¹

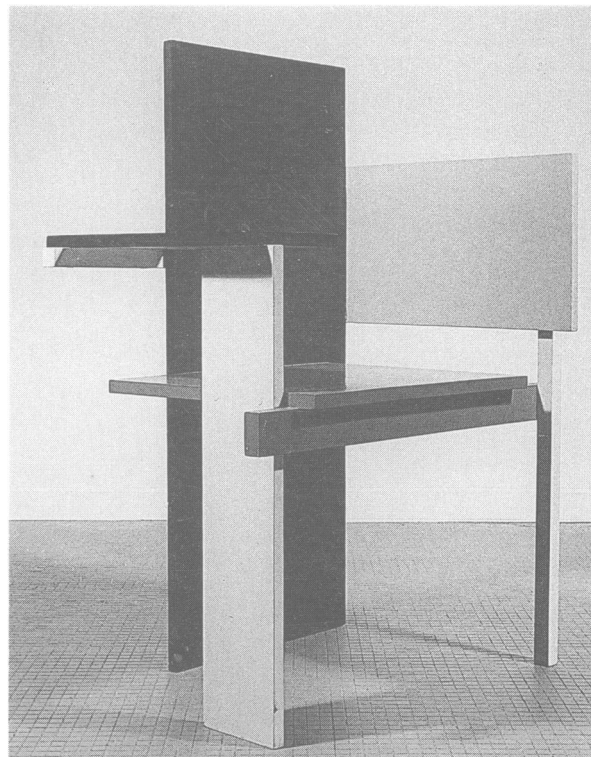
Rietveld had the Berlin chair made up in full size versions for the Schröder house [26].³² The chair is



24 Maquette for room, Jurifrei Kunstaussstellung Berlin 1923, colour by Huszár, furniture by Rietveld. Colour reproduction from *Architecture Vivante*, Autumn 1924



25 Cupboard, designed by Rietveld or his own use. (Collection Bertus Mulder.) This cupboard appears to be similar in design to the table seen in the maquette in fig. 24



26 Berlin chair, designed 1923. This example was made by Van de Groenekan in the late 1950s. (Brian and Margaret Housden Collection, London)

very similar to a model of the house in its radical asymmetricality and planar construction and has a metonymic function inside the house as a kind of visual synecdoche. It is also—in the extant versions—painted in similar shades of grey to the exterior of the house, although this was probably done later [27]. (The Schröder house pieces were originally painted black.³³) Where the early experimental pieces using the 'Rietveld joint', like the Red Blue chair and the Buffet, were predominantly constructed from linear elements, the Berlin chair and the End table are mainly constructed from planes.³⁴ These experimental pieces also fed into Rietveld's 'regular' work, although not immediately. He employed planar construction a decade later in the Crate furniture.

Rietveld and the 'Nieuwe Bouwen'

Rietveld remained associated with De Stijl until Van Doesburg's death in 1931. He was the only major Dutch De Stijl collaborator not to fall out with him, and defended him against attacks by former collaborators and current enemies.³⁵ However, by the mid-1920s Van Doesburg had moved his centre of operations to France. Apart from his designs for the interior of the Aubette in Strasbourg in collaboration with Hans Arp and Sophie Taeuber Arp (1926–8) and Mondrian's later painting and organization of his studio, De Stijl was mainly important at this time as an influence on French-based architects and designers including Le Corbusier, Robert Mallet-Stevens, Eileen Gray and Felix Del Marle.³⁶

Rietveld (who rarely left Holland) was now in closer contact with Dutch architects and designers like Mart Stam, Ben Merkelbach and J. B. van Loghem who stood on the Marxist wing of Dutch



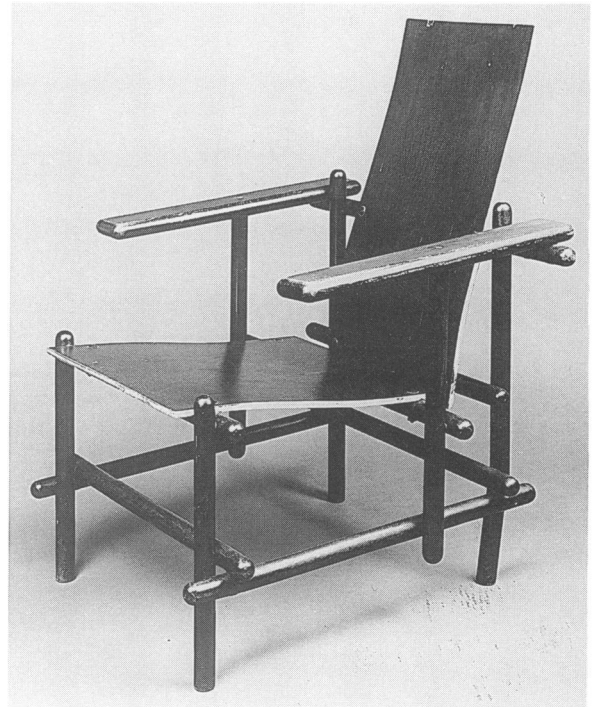
27 Schröder house, designed 1924, exterior; photographed late 1980s

modernist architecture (or *Nieuwe Bouwen*).³⁷ During the years 1926–31 he produced architectural designs and furniture for multiple production which were closer to the quasi-functionalist *Nieuwe Bouwen* than to *De Stijl*. In 1928 Stam published an article entitled 'Away with the Furniture Artists'.³⁸ Rietveld probably felt that this attack on 'exclusive' furniture was partly aimed at his own earlier practice [28]. In 1927, the year when Stam's article was written, he designed a number of pieces combining bent metal tubing and bent plywood for multiple production, such as the various versions of the *Beugelstoel*, which were made in quantity and marketed by the Dutch retail firm of Metz [29].

In the late 1920s Rietveld made a number of experiments with moulded fibreboard and bent plywood [30]. The *Birza* chair, a one-piece chair made of moulded fibreboard designed for the apartment of the Amsterdam pharmacist J. W. Birza in 1927 was, like many of Rietveld's designs, ahead of its time in that the techniques to produce it in quantity successfully were not then available. It was apparently so difficult to make that Van de Groenekan refused to make any more. Rietveld's attempts to interest furniture manufacturers in producing the chair were unsuccessful.³⁹

At about the same time as Rietveld designed the *Birza* chair he produced prototypes for the *Beugelstoel*, using fibreboard bent over a steel frame. This chair was shown in the Deutsche Werkbund exhibition 'Der Stuhl' in Stuttgart in 1928 and reproduced in Adolf Schneck's catalogue *Der Stuhl*.

Brown argues that 'an examination of this catalogue of the most advanced chairs of that time indicates that Rietveld's chair was the only one in the book that incorporated seat and back into one surface.'⁴⁰ However, a chair designed by Heinz and Bodo Rasch



28 Chair, designed c. 1924–5; plywood and ebonized wood. The first example was made for the Schröder house; this example was made for a room in the apartment of the Amsterdam pharmacist Birza in 1927



29 'Beugelstoel', designed in 1927; plywood, painted white and steel rod, painted with aluminium paint. Manufactured and marketed by Metz from 1930



30 'Birza chair', designed in 1927 for the Birza apartment; made from a single sheet of shaped fibre held in place with a series of nuts, bolts and washers. Van de Groenekan refused to make any more because of the difficulties of construction. Apparently the fibre was soaked in water and modelled on a bench

in 1927 and shown in the Stuttgart exhibition does this in a similar manner to Rietveld's. Like Rietveld the Rasch brothers used solid steel rods rather than metal tube. In both chairs the plywood is screwed to the metal frame, unlike Alvar Aalto's later designs which are suspended within it and which thus use the resilience of the material as well as its flexibility.⁴¹

In later versions of the Beugelstoel Rietveld replaced fibreboard with plywood which was much lighter [31]. The chairs were produced commercially in quantity for Metz from 1930 in three variants, one with and two without arms. The prototypes made by Rietveld were somewhat larger in dimensions than those put into production for Metz. Due to a growing demand for these in the 1930s some of the pre-formed seats were manufactured in Denmark. The plywood seats were painted in primary colours, black or white, the steel frame was painted black or with aluminium paint.⁴²

In the late 1920s and in the 1930s Rietveld worked extensively for Metz which, with branches in Amsterdam and The Hague, served roughly the same kind of middle-class clientele as Heal's in Britain. Originally a drapery store in Amsterdam whose commercial success had depended on holding the Liberty concession in Holland, Metz began to commission and manufacture furniture after the First World War to produce a more 'modern' image for itself. Initially the main designer was Willem Pennaet, who designed simple white lacquered furniture. At the end of the 1920s Metz began to manufacture and sell furniture designed by Rietveld. As well as the Beugelstoel, Metz produced and marketed a number of versions of the Zig-zag chair, the Crate furniture and several other pieces of furniture designed by Rietveld.⁴³ Model interiors with furniture by Rietveld and wall hangings by the former De Stijl painter Bart van der Leek helped to construct the Metz house style in the late 1920s and 1930s.⁴⁴ Rietveld re-designed the Hague branch and designed the spectacular roof-top extension to the Amsterdam store in 1932, where the firm's 'modernist' furniture and model rooms were displayed [32]. (This has been restored recently as a roof-top restaurant.) Given Rietveld's left-wing views at the time, it might seem something of a contradiction that he should have designed for an exclusive store like Metz. However, even those Dutch architects and designers to the left



31 'Beugelstoel', varnished plywood and black painted metal rod. This high-backed version belonged to Hans Arp and Sophie Taeuber Arp. It is seen here with a cushion designed and made by Taeuber Arp (Fondation Arp, Meudon)

of Rietveld like Stam produced designs for Metz in the 1930s. Although Metz was an exclusive shop selling mainly to the well-off educated middle classes, most of Rietveld's furniture was relatively cheap compared to the store's more expensive lines, such as the wooden furniture designed by Penaat, or tubular metal furniture by Marcel Breuer [33]. (The Crate chair cost about a tenth of the price of a Breuer tubular chair, the Zig-zag chair about a quarter.⁴⁵)

Zig-Zag Chair

Reyner Banham has described Stam's pioneering prototype cantilever chair made of steel tubing (1926) as 'the design that liberated chairs from Rietveld's Elementarist *impasse*'.⁴⁶ But in his furniture design of the 1920s Rietveld was himself moving away from what Banham calls the 'Elementarism' of his early experimental furniture. Rietveld's early pieces like the Red Blue chair and the Buffet were an analytical reduction of conventional furniture types to their component parts, stripping the fat of upholstery and veneering away to reveal the skeletal



32 Shop-front of annexe of Metz store in Amsterdam, redesigned by Rietveld in the early 1930s, photographed in the late 1960s. The annexe is now a café. The window and entrance are unchanged, but the lettering has been removed

structure underneath. By contrast the experimental pieces of 1923, the Berlin chair and the End table, are like architectonic, constructivist sculptures. Here, perhaps, was the 'impasse'—rather than the Red Blue chair to which Banham refers.⁴⁷

However, as we have seen, in 1923 Rietveld was not only designing highly experimental pieces like the Berlin chair and the End table, but also 'regular' pieces like the Military furniture. Having deconstructed the idea of the traditional piece of furniture, it was necessary to construct new *types* which could be produced simply in quantity. The design of the Red Blue chair had gone some way towards this ideal. Designs like the Military furniture show Rietveld moving closer to this aim. In his early Elementarist experimental designs he had constructed furniture from a large number of individual elements which are deliberately kept visually discrete in the finished piece. From 1927, with the design of the Birza chair, moulded from a single piece of fibre-board, he was searching for ways of making furniture from the minimum number of elements and if possible from a single piece of material.⁴⁸

Like the Crate furniture, the Zig-zag chair is also constructed from planes, although the effect of its ingenious method of construction is to suggest that the chair is made from a single piece of material

'folded' to the required form. The earliest prototypes were of fibre stretched over metal frames [34–5].⁴⁹ Rietveld also made a chrome steel model, a very elegant version of the cantilever chair which had first been made by Stam and developed by Marcel Breuer, Mies van der Rohe and many other designers in the late 1920s and early 1930s [36].⁵⁰ Rietveld's chairs, where the tubes cross to form an 'X' from the front and a 'Z' when seen in profile, and the back and seat of which were of rubber webbing, suffered from a structural weakness which today could easily be resolved. These were manufactured and sold by Metz in the early 1930s, but were discontinued because of this weakness.

By the late 1930s it was possible to produce a one-piece bent plywood version with sharply curved angles, using thick multiplex plywood, which was exhibited as part of a show room by Metz in 1938.⁵¹ However, these do not seem to have continued in production, so presumably there were also problems with the one-piece construction. Rietveld also made a sketch about 1938 of a one-piece version to be made of pierced steel, but as far as is known this was never manufactured.⁵²

Rietveld did not solve the problem of making a Zig-zag chair from a single piece of material, and the versions of the chair which went into general production were inevitably a compromise. However, these were a highly ingenious and formally satisfying compromise, displaying a bravura manipulation of the material (wood). The standard wooden model, made from the mid-1930s, came in two versions, a softwood version batch-produced and marketed by Metz, and a hardwood version (usually elm, but occasionally oak), hand-made to order by Van de Groenekan. There were also several variants, including versions with arms and with large holes cut into the wood to reduce the weight of the material, high back armchairs without holes and a very dramatic high back version with a low seat and steeply slanting back which, even more than the standard version of the Z chair, suggests a crouching figure or animal [37].⁵³

The first Z chair of wood, made for the Schröder house, was constructed of deal and had dovetail joints between the back and seat and between the base and diagonal support [38]. At the 'knee' joint between diagonal support and seat (where there is most structural stress) a small wedge was inserted in

BUREAUFAUTEUIL fl. 5.95
 SCHRUF-TAFEL met laden en be-
 ging voor boeken, hoog 70 cm.,
 bladmaat 60 x 100 cm. fl. 14.50

Meubelen van ongeschilderd vurenhout. Onder-
 deelen zichtbaar aan elkaar bevestigd. Tegen
 prijsverhoging gelakt te leveren in elke ge-
 wenschte kleur. Voor week-endhuizen, serre's,
 studenten- en kinderkamers.

**WEEKEND
 MEUBELN**
 ONTW. G. RIETVELD

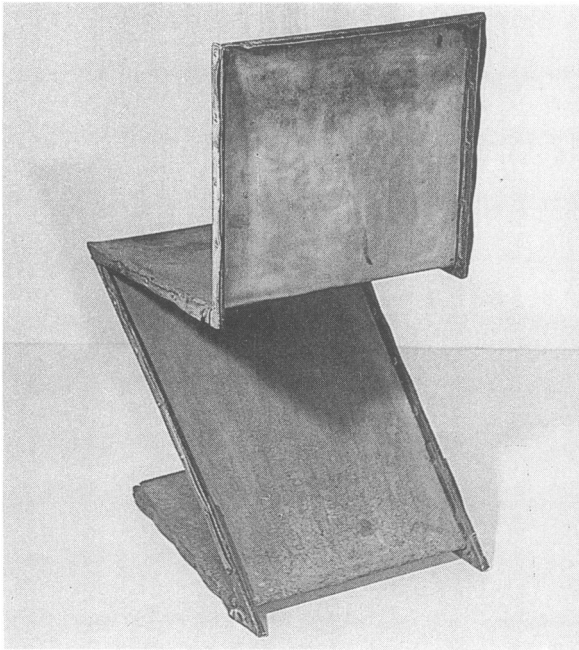
BOEKENKAST met vaste planken,
 hoog 110 cm., breed 100 cm., diep
 22 cm. fl. 12.50
 TAFEL, hoog 47 cm., bladmaat
 63 x 49 cm. fl. 4.95
 FAUTEUIL, zonder kussens fl. 5.95

33 Catalogue of Crate furniture, Metz, c. 1935

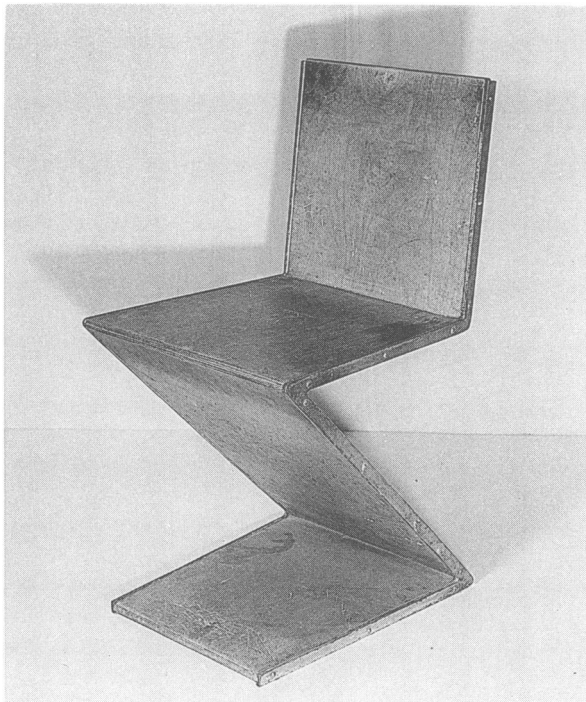
the acute angle formed by the two planes of wood through which bolts were passed, secured by small nuts which were countersunk into the wood. According to Van de Groenekan, Truus Schröder's household help scrubbed and polished the chair so enthusiastically that the bone glue in the dovetails came unstuck. Rietveld then added bolts with nuts secured through two holes cut in the wood of the back of the chair.⁵⁴ In the version hand-made by Van de Groenekan from hardwood, customers could specify which jointing they preferred.⁵⁵ The batch-

produced softwood version sold by Metz had a dovetail joint between back and seat and brass bolts at the knee joint. The chairs were usually sold plain and unpainted, some however were dark stained, others lacquered in white, red and green.

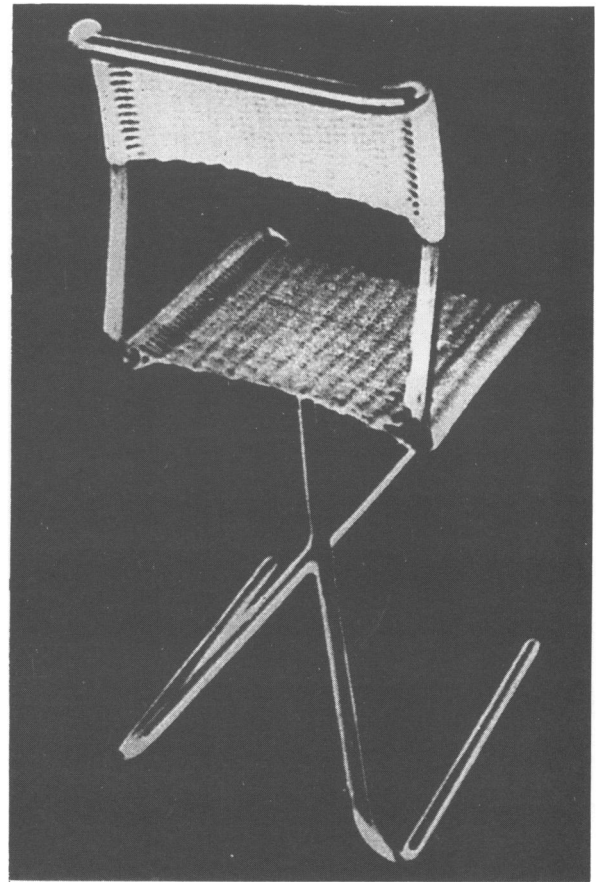
If the early experimental pieces can be seen as deconstructions of traditional chairs and buffets, the Zig-zag chair can be seen as deconstructing the cantilever tubular chair, which by the early 1930s had become a rapidly proliferating cliché of the Modern Movement. The Zig-zag chair thumbs its nose at the



34 Prototype for Zig-zag chair; moulded fibre over metal frame, c. 1932–4 (Stedelijk Museum, Amsterdam)



35 Prototype for Zig-zag chair chair; plywood and metal frame; c. 1932–4 (Stedelijk Museum, Amsterdam)

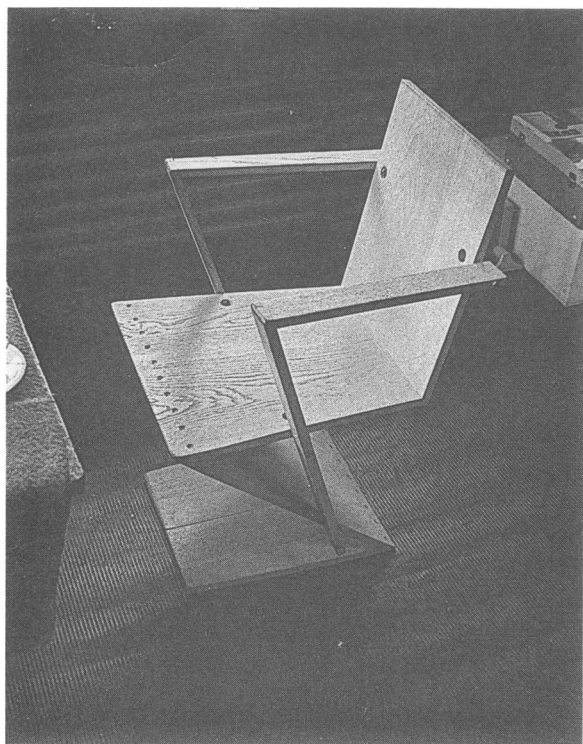


36 Cantilever tubular steel chair, c. 1932. The seat and back was of rubber webbing

metal cantilever chair by achieving the seemingly impossible: creating a cantilever chair of wood, albeit by bizarre and somewhat unwieldy means. Only a designer who had worked with wood since childhood like Rietveld would have dared attempt something so odd—a prime example of his ‘peculiar’ practice. Paradoxically, this chair, the form of which is even more extraordinary than the Red Blue, was probably Rietveld’s best-selling design. (It was in production by Metz from the mid-1930s to the 1950s.⁵⁶)

Crate Furniture

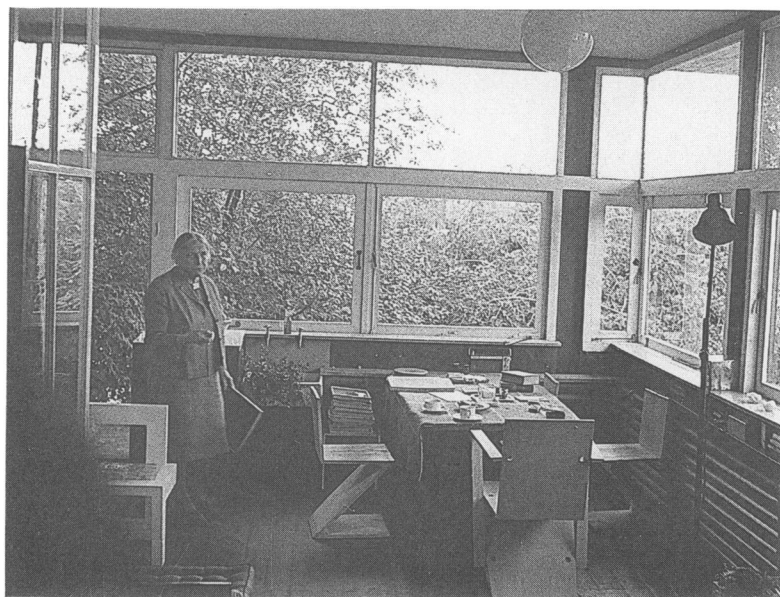
In 1934 Rietveld designed the Crate furniture, a series of pieces marketed by Metz, which were



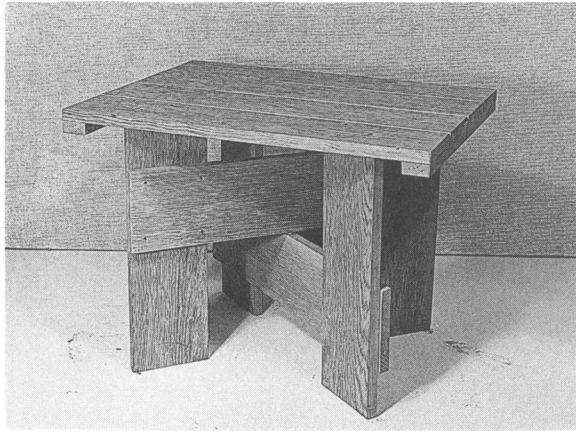
37 Zig-zag chair with arms, c. 1932–4. This example was made for Truus Schröder. Photographed in the Schröder house, 1968

delivered flat for assembly by the purchaser. The wood was cheap red spruce of the kind used for making packing-cases and crates—hence the name given to the furniture [39]. The flat wooden boards were joined together with screws and steel nuts and bolts. In these designs there is no extension of the elements past the point of junction—the ‘Rietveld joint’ as such had long ago disappeared from Rietveld’s formal vocabulary. But the boards are overlapped in a way which is reminiscent of the planes of the Berlin chair and the method of assembly and fixing by means of metal bolts is a simplification of the system first tried out in the Military furniture. The Crate furniture was advertised as being suitable for weekend houses, students’ and childrens’ rooms and could be supplied painted in any colour of the purchaser’s choice at extra cost.

The range comprised an armchair which could also be purchased with square cushions covered with a fabric designed by Bart van de Leek,⁵⁷ a more upright version, a small desk with bookshelves round its base, two small occasional tables, one with a lower shelf for magazines or books, and a book-case. Rietveld also designed a large dining table. This did not form part of the Metz collection, but was made to order by Van de Groenekan and supplied to



38 Interior of the Schröder house, with Zig-zag chairs, one with arms, two without. Truus Schröder can be seen to the left of the table. Photographed in 1968



39 Crate table, designed 1934 (Stedelijk Museum, Amsterdam). Along with the other examples of the Crate furniture illustrated in the catalogue in fig. 33 the table was sold by Metz in the 1930s packed flat for home assembly

some of Rietveld's clients for whom he designed weekend houses in the country.⁵⁸

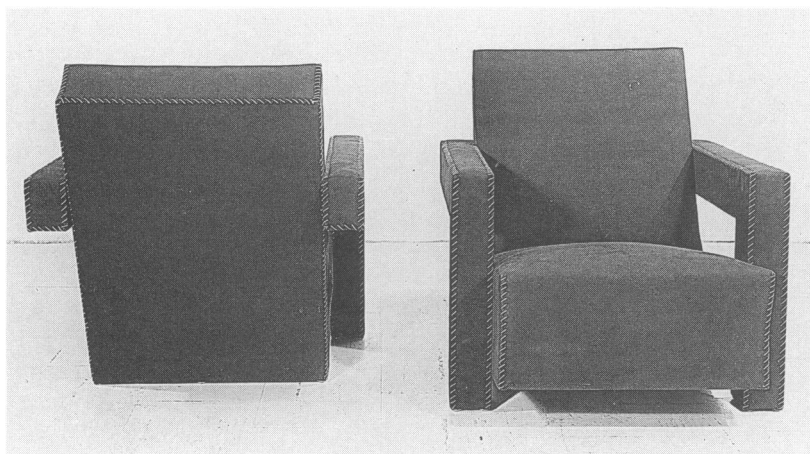
When delivered packed flat the Crate furniture looked somewhat like a crate. In reply to a reader who asked for an explanation of these furniture designs, Rietveld wrote in the architectural magazine, *Bouwkundig Weekblad*, that people sometimes received an object delivered in a crate which they value highly, but they do not know how to value the crate itself which may often be of more significance than what it contains.⁵⁹ Later, Rietveld made a series of drawings for an exhibition which he called 'Furniture to Make Oneself',⁶⁰ Many years later, long after Rietveld's death, a book was published with plans and drawings showing how to make many of the best known pieces of Rietveld furniture.⁶¹ The structure of the Red Blue chair displayed the way in which it was put together with absolute and perhaps deceptive clarity. (The chair is not so easy to make as it looks, although many competent amateur carpenters, designers and students have made their own examples.) If the constructional logic is not so immediately apparent in the Crate furniture, the purchaser was nevertheless able to experience this in putting the furniture together. Undoubtedly Rietveld took into consideration the satisfaction that this might give the customer when he made the design.

Hand versus Machine Production

The Italian firm of Cassina and Alivar today make Rietveld furniture which is sold commercially at high prices. The pieces in production are the Red Blue chair, the End table and the Zig-zag chair (Cassina also make an upholstered chair and sofa of 1935) [40]. These are marketed as part of a range of 'Classics' or 'Masters'.⁶² This serves to further 'iconize' these particular works, which are torn out of their context within the development of Rietveld's furniture production as a whole. Only since it has been produced by Cassina (from 1972) have the dimensions of the Red Blue chair become standardized. Rietveld and Van de Groenekan made many different versions both painted and unpainted in the first years of its production.⁶³ However, this standardization process had already begun after the war, when 'standard' versions of the 'classic' pieces were shown in Amsterdam, Venice and New York and Van de Groenekan began to produce the 'classic' Rietveld pieces again for collectors and museums from the 1950s until 1971.

Rietveld was interested in the idea of standardization in furniture manufacture. (The Metz Zig-zag furniture and Crate furniture were the most developed examples.) But he himself was constantly producing variants of what have now become standard designs. This is not a contradiction, but reveals the difference between the prototypical process and the arrival at a standard form or *type* for multiple production.

Rietveld's early furniture makes one aware of the process of production, not only by its 'elementary' or 'constructional' design, but also because it was quite roughly made and finished.⁶⁴ It always remains apparent that these pieces of furniture have been *produced* [41–2]. 'Taste' as a separate aesthetic construct in design arises when the end product is visually severed from the means of production. Rietveld's furniture is not tasteful—at least not in the versions made by Rietveld himself or by Van de Groenekan, or those which people have constructed themselves. And because they were costed and produced for sale to customers who would use them in their homes and summer-houses, rather than collectors who would place them on show to be admired for their taste, there was much less difference between the pieces made and sold by Metz and the equivalent pieces made by Van de



40 Chair, 1935. This unusually comfortable (for Rietveld) upholstered chair was reproduced by Cassina as the 'Utrecht Chair' in 1988, the centenary of Rietveld's birth

Groenekan. By contrast, the examples produced as 'classic' replicas by firms such as Cassina try to make Rietveld's furniture 'tasteful' by finishing and lacquering it so perfectly that the traces of the process of production are eliminated.



41 Cabinet; oak with brass handles; designed and made in 1911. This and the table in fig. 42 were made by Rietveld for his marriage in 1911

In a letter to Van Doesburg of 1919, which Van Doesburg had quoted when he reproduced the prototype of the Red Blue chair in the September 1919 issue of *De Stijl*, Rietveld wrote;

With this chair an attempt has been made to have every part simple and in its most elementary form in accordance with function and material, the form, thus, which is most capable of being harmonized with the whole. The construction is attuned to the parts to ensure that no part dominates or is subordinate to the others. In this way, the whole stands freely and clearly in space, and the form stands out from the material. And this wood construction makes it possible to construct a large chair with rails of 2.5 × 2.6 cm.⁶⁵

Here Rietveld emphasized the formal and spatial characteristics of the chair rather than its potential for mass production.



42 Table; oak; designed and made in 1911

In a filmed interview with Piet van Mook in 1963, Rietveld emphasized the machine-made character of the chair and, implicitly, its potential for mass production:

The so-called Red Blue chair, the chair made of two boards and number of laths, that chair was made to the end of showing that a thing of beauty, e.g. a spatial object, could be made of nothing but straight, machined materials. So I had the plank sawn into strips and laths; the centre part I sawed in two halves, so I had a seat and a back and then, with the laths of various lengths I constructed the chair.⁶⁶

Although this statement comes from the last years of Rietveld's life, he seems to have thought in these terms at the time when he evolved the chair. He probably regarded its machine-made appearance as a deliberate rejection of the craftsmanly ethos of his father who disliked machine methods of production.⁶⁷

Rietveld was also concerned with designing furniture which would not be a drudgery to produce, either through repetitive machine work, or through repetitive handwork—both equally soul destroying. When describing the Baby's high chair in *De Stijl* in July 1919, he stressed the visual pleasure to be had in assembling the piece and fixing its component parts together by means of the dowel or 'peg-and-hole' construction, as well as its suitability for modern methods of production:

The common peg-and-hole connection, used to fasten horizontal and vertical members, is still used for almost everything. This connection is also very satisfying to see during construction; it is pleasant to see, for example, a set of rails and posts with hole, peg and groove. When, however the furniture is assembled one no longer sees this very rich connection . . . The wood connection used here is obvious because of its simplicity and clarity of expression. In addition, it is particularly strong because the wood ends remain in their full strength. The system takes little time [to execute] and it accommodates itself to modern working methods.⁶⁸

As Theodore Brown has argued:

From a social point of view he wanted, by the use of machines, to relieve the tedium of the man who produced furniture. As a craftsman, Rietveld knew that satisfaction was derived from the production of one or two hand-built pieces. The compulsion of modern life had forced the craftsman, in Holland at any rate, to produce multitudes of items by hand; and this was drudgery for him. Articles

designed for machine production, in Rietveld's view, would produce the same results without subjecting the craftsman to a stultifying outline.⁶⁹

Rietveld began to make his early experimental furniture at a time when machine methods of wood cutting were being introduced in Holland and the age-old methods and traditions of the craftsman were being challenged.⁷⁰ Here lies the ambiguity of these early works. Although designed to be machine cut and assembled in quantity, they retain a look of the handmade, never becoming anonymous machine products. Their peculiarity is the result of this conjunction. Brown has argued that: 'Standing between the familiar world of the craftsman and the unexplored world of the industrial designer, Rietveld expressed in his early work and writing the best qualities of both.'⁷¹

In an introduction to Friedman's catalogue of Rietveld furniture, Nancy Troy claims:

These designs are hallmarks of modernism not because they reject all formal precedents in favour of a relentless search for stylistic renewal, nor because they reject the production methods of the past in favour of those which we identify with the present . . . [but] because they literally embody and thereby make visible the tensions between past and present, individual and universal, private and public that mark virtually every aspect of modern life.⁷²

Modernist commentators, like Giedion stressed the unprecedented nature of invention in designs like the Red Blue chair; 'As in painting and architecture, it was temporarily to forget everything and begin afresh, as if no chair had ever before been built.'⁷³ This is also the tenor of Colin St. John Wilson's highly emotional obituary of Rietveld: 'And so he made the first chairs, the first light fittings, table, cupboard, radio-set, desk, flexible walls—in short the first house and all the equipment in it to match the dream of a work in which only the New could be marvellous and desirable.'⁷⁴ This is amplified to a crescendo in Baroni: 'Rietveld brought about the total and absolute destruction of the traditional appearance of objects by means of his method of breaking up volumes and reconstituting them into new and simplified structures defined by a code of rules which was at once visual and structural. As a result of this method the object emerges not only renewed, but entirely reinvented, and the traditional methods of making furniture have been superseded.'⁷⁵

Baroni sees Rietveld's furniture as virtually without precedent: 'It is usual for the relationship of an object to history to be perceived against the background of other objects and in association with them, in other words, as modifications of precise constant factors. Such a historical relationship is almost non-existent in the case of the "Rood Blauw".'⁷⁶

In the 1980s, on the other hand, design historians tried to suggest precedents and antecedents for Rietveld's early experimental furniture. The precedents that have been found in Wright, Berlage and Klaarhamer's furniture design are for such elements as the inclined separate plane of the back of the Red Blue chair, rather than for the 'Rietveld joint', which occurs neither in Berlage nor Wright's work. However, anyone who has visited the Frick collection in New York will have been struck by the 'Rietveld lectern' used by the saint in Giovanni Bellini's *St Francis in Ecstasy* [43].

Carel Blotkamp has devoted an article to the similarity of the 'Rietveld joint' to medieval forms of wooden construction like that represented in this painting.⁷⁷ Blotkamp illustrates nineteenth-century Dutch school desks designed on a similar principle, and it is easy enough to find other vernacular precedents. A family photograph of Rietveld standing in front of a wooden pier by the seaside, shows similar construction in the joining of the handrails and the

groynes under the pier. It was while painting in Zeeland and at Scheveningen c. 1915 that Mondrian began to paint his 'Pier and Ocean' or 'Plus and Minus' paintings in which elements similar to two-dimensional versions of the 'Rietveld joint' appear. However, it is unlikely that these works influenced Rietveld's adoption of the joint, if in fact he ever saw them.⁷⁸

This return to earlier, simpler (and by implication) 'purer' methods of construction or composition was typical of the modernist art and design of the first two decades of the twentieth century. Such 'primitivism' should not be confused with the interest of the Cubists and German Expressionists in the so-called 'primitive' art of Africa and Oceania. Here, by contrast, 'primitivism' is used in the sense that early Italian painters are conventionally described as 'primitives' by art historians. The De Stijl painter Bart van der Leek regarded his work as the primitive expression of 'a new art for a new age'.⁷⁹

In searching for a new way of approaching the construction of a piece of furniture, Rietveld went back to basic methods of carpentry used in the Middle Ages but still current in the crude vernacular of wooden piers and agricultural implements in the early decades of the twentieth century. From this 'return to first principles' he seems to have believed it would be possible to develop new methods of designing and making furniture appropriate to an age in which electrically driven woodworking machinery and new glues made new methods of production possible in a small workshop as well as in a large factory.⁸⁰

Rietveld did not unthinkingly reject the past in a quest for the new. This is apparent from the following passage from an article published in *i10* in 1927 which reveals his long training in, and knowledge of, traditional furniture making:

The uninitiated sometimes find it difficult to understand why decorative elements are the result of purely technical considerations current at the time of manufacture; in chairs dating from the time of Louis XV, for instance, the curvature of the wood is explained by the fact that it was cut with a bow-saw, which tended to produce a slightly curved line rather than a completely straight one, and by the fact that the grain of most wood is slightly askew. A leg or length of wood which was slightly curved was more easily smoothed and hollowed with a gouge (a concave-bladed chisel), than with a file or scraper. The hollow profile of the



43 Giovanni Bellini (c. 1430–1516), *St. Francis in Ecstasy* (Frick Collection, New York)

leg was often best interrupted at the joints by a little ornamental work, because of the different directions of the grain of the various sections; the addition of a little scroll or rosette in the context of the sober curving lines of the chair give an effect of gracefulness which looks as though it had been dictated by totally aesthetic considerations. This is why the so-called cushion-panels and hollow profiles on the doors of Dutch Renaissance cupboards are in fact quite necessary—to protect its half-inch thick panels against warping.⁸¹

It was this knowledge and understanding of the furniture maker's trade—the word is used deliberately, rather than 'craft'—that enabled Rietveld to make many daring and extraordinary experiments that could feed into his 'regular' production. In the first half of the 1930s the conditions of production and consumption and the peculiarity of Rietveld's own practice intersected, so that the 'regular' and 'experimental' came together, as in the Zig-zag chair and the Crate furniture.⁸²

PAUL OVERY
London

Notes

- 1 'Peculiar' is used here in its older meaning of 'unlike others, singular'; but undoubtedly Rietveld's furniture has often struck people as peculiar in the OED sense of 'strange, odd, queer'. One would not want to deny that it evokes all of these epithets, among others. But without wishing to add to the myths which surround Rietveld's work, I want to argue that this is different in a number of important ways to that of most other modernist architect/furniture designers.
- 2 Jürgen Habermas, 'Modernity—An Incomplete Project', in Hal Foster (ed.), *Postmodern Culture*, London, 1985, p. 4.
- 3 Reyner Banham, *Theory and Design in the First Machine Age*, London, 1960, p. 180; pp. 198–9.
- 4 The drawing for the price list was shown in the 'Rietveld Schröder Archief' exhibition at the Centraal Museum, Utrecht, in 1988, and in the 'Rietveld and the Schröder House', South Bank Centre touring exhibition, 1990–91. It is illustrated in Paul Overy, *De Stijl*, 1991, p. 78. Marijke Küper, who catalogued the archive, has dated the price list as c. 1923. No information or archives appear to survive relating to the firm of Cvt Hullenaar.
- 5 Upright chairs without arms and stools and/or small tables were commissioned for the Catholic Military Home in Utrecht. The commission also perhaps included long tables similar to that later (from c. 1925–35) used as a dining-table in the Schröder house. The commission came through P. van der Pluym, a Utrecht shopkeeper for whom Rietveld designed a new shop-front in the fashionable Oudkerkhof in Utrecht in 1924. Pluym gave financial support to the Military Home. (Marijke Küper, *Rietveld als Meubelmaker: wonen met experimenten 1909–1924*, exhibition catalogue, Centraal Museum, Utrecht, 1983, p. 21, note 47.) Examples of the Military chair and the stool/table were also made for the Schröder house. In 1925 Rietveld designed an arm-chair on similar principles, with the plywood seat and back bent to form an oblique angle which provides a slightly greater degree of comfort and flexibility. This seems to be one of the first examples of Rietveld's bending plywood. (A version of the Red Blue chair with round wooden rails and a more ergonomically curved plywood seat and back was made for the Schröder house, at approximately the same time, c. 1925.) In 1927 Rietveld used plywood bent over a frame of metal rods or tubes in the Beugelstoel.
- 6 So called because the three elements in the joint represent the three spatial co-ordinates corresponding to the three dimensions as described by Descartes.
- 7 This was the year when Rietveld designed the Schröder house. Presumably he no longer had sufficient time to make his furniture himself although he continued to design furniture for the rest of his life. Another factor may have been because his ideas were increasingly turning to mass, or at least multiple, production. (The evidence of the c. 1923 price list would seem to corroborate this.) Van de Groenekan continued to make Rietveld furniture to order up to 1937 (when he went to South Africa until after the war) and then again until 1971. Of Rietveld's earliest experimental designs probably only the Red Blue chair continued to be made by Van de Groenekan in the 1930s, by which time it would have looked decidedly 'old fashioned'.
- 8 Letter from Rietveld to Oud, dated 4 May 1920, quoted by Marijke Küper, 'Gerrit Rietveld', in Carel Blotkamp, *De Stijl 1917–1922: The Formative Years*, Cambridge Mass, & London, 1986, p. 267. Visible in the only extant photograph are the High Back chair, the Red Blue chair (unpainted with additional side boards), a table designed on similar principles and a version of the High Back chair without arms or side boards. There may have been other pieces in other rooms, photographs of which were either not taken or have not survived. (Küper, in Blotkamp op. cit., p. 278, note 24. The photograph is reproduced on p. 268, pl. 254.)
- 9 Fourteen years later a show flat was furnished with Rietveld furniture in the first high-rise block of worker's flats designed in Holland at Bergpolder in

- Rotterdam by Brinkman, Van der Vlugt and Van Tijen in 1934. (Petra Timmer, 'Metz and "Nieuwe Bouwen"', in *Het Nieuwe Bouwen: Amsterdam 1920–1960*, Delft, 1983, p. 130.)
- 10 Frits Bless, 'From Schröder house to workers dwelling', in *Het Nieuwe Bouwen: Voorgeschiedenis/Previous History*, Delft, 1982, pp. 135–43. This distinction is also applied by Bless to Rietveld's furniture in his monograph, *Rietveld 1888–1964: een biografie*, Amsterdam & Bearn, 1982; see p. 41 and *passim*.
 - 11 Bless, see note 10; Küper 1983, *op. cit.*; Küper, in Blotkamp *op. cit.*; Marijke Küper & Ida van Zijl, *Rietveld Schröder Archief*, Exhibition catalogue, Centraal Museum, Utrecht, 1988.
 - 12 Many of the best pieces sold at auction in Amsterdam were bought by the New York dealer Barry Friedman (see Barry Friedman, *Gerrit Rietveld: A Centenary Exhibition, Craftsman and Visionary*, New York, 1988).
 - 13 Daniele Baroni, *The Furniture of Gerrit Thomas Rietveld*, New York, 1978, p. 29. Breuer trained as a furniture designer at the Bauhaus, Mies was apprenticed to the architect and furniture designer Bruno Paul.
 - 14 Martin Filler, 'The Furniture of Gerrit Rietveld: Manifestos for a New Revolution', in Mildred Friedman (ed.), *De Stijl: 1917–1931, Visions of Utopia*, Oxford, 1982, p. 126.
 - 15 Peter Smithson, 'Rietveld', *Architectural Design*, September 1964, reprinted in Alison and Peter Smithson, *The Heroic Period of Modern Architecture*, London, 1981, p. 18.
 - 16 See Bless 1982, *op. cit.*, pp. 11–21; Küper 1983, *op. cit.*, pp. 2–3; Küper in Blotkamp, *op. cit.*, pp. 260–1. Of Rietveld's six children, Elisabeth Eskes-Rietveld became a painter, Jan Rietveld became an architect, Wim Rietveld an industrial designer, and Gerrit Rietveld Jr a furniture designer. An exhibition of their work 'Vier x Rietveld' was held at De Zonnehof in Amersfoort in March/April 1991.
 - 17 Filler, in M. Friedman, *op. cit.*, p. 126.
 - 18 *De Stijl*, vol. 2, no. 9, pl. XVIII; p. 102. The chair was commissioned by H. G. J. Schelling. (Küper, in Blotkamp, *op. cit.*, p. 263.) Schelling, who worked as an architect for the Dutch Railways, was one of Rietveld's earliest clients. He bought several examples of Rietveld's early furniture and commissioned a number of pieces of children's furniture for his young daughter. (Küper 1983, *op. cit.*, pp. 3–5.) The Child's chair seems to have been the first piece of experimental furniture by Rietveld to have been coloured. The wood was painted green, the leather stained dark red. He did not, however, begin to paint his furniture and toys in the primary colours until around 1923. (*Ibid.*, pp. 19ff.) See note 22.
 - 19 *De Stijl*, vol. 2, no. 11, pl. XXII; p. 133. Van Doesburg's commentary also quotes from a letter from Rietveld about the chair's construction.
 - 20 *De Stijl*, vol. 3, no. 5, pl. VII.
 - 21 *Ibid.*, p. 46.
 - 22 For the painting of Red Blue chair see Küper 1983, *op. cit.*, pp. 19–20; Küper, in Blotkamp, *op. cit.*, pp. 272–3. In the first years after its design, the chair was often painted black or white, varnished or stained, and was often built to different dimensions (e.g. 'male' and 'female' versions, see B. Friedman, *op. cit.*, p. 22). A selection of early variants, both coloured and unpainted are illustrated in B. Friedman, *op. cit.*, pp. 22–8.
- The first published reproduction—albeit a black and white one—which appears to show the chair painted in primary colours was published in the *Nieuwe Bouwen* magazine *De 8 en Opbouw* in January 1935 (Year 6, no. 1, 5 January 1935, p. 2). This was one of a series of illustrations to an extensive unsigned review (apparently by Mart Stam) of the exhibition 'De Stoel gedurende de laatste 40 Jaar' (The Chair During the last 40 Years) organized by VANK (Vereeniging van Ambachts- en Nijverheidskunst—Society for Handicrafts and Industrial Arts), which was shown at the Stedelijk Museum, Amsterdam, in late 1934 and early 1935. The date given for the chair is 1924. This possibly refers to when the chair was first made in its painted version, although it is odd that this date should have been given; Rietveld was a frequent contributor to the magazine. An unpainted version of the chair certainly dates from 1919 or before. It was illustrated in *De Stijl* in September of that year and exhibited at the exhibition 'Aesthetisch uitgevoerde gebruiksvoorwerpen' (Aesthetically Executed Functional Objects) at the Museum van Kunstnijverheid in Haarlem from 22 September to 22 October 1919. (Brown, *op. cit.*, p. 153, note 5; Küper, in Blotkamp, *op. cit.*, p. 267.) Most commentators have agreed that given the time which would have been required to design and make the chair and bring it to the attention of Van Doesburg and the organizers of the exhibition, it can be safely dated as early as 1918. It was dated 1918 in *Nederlandsche Ambachts- en Nijverheidskunst Jaarboek*, Rotterdam 1921, p. 65 and in J. Havelaar, 'Het moderne meubel', (Modern Furniture), in *De Toegepaste kunsten in Nederland*, Rotterdam, 1924, p. 56. Bless has dated it even earlier, c. 1916, although his evidence is not convincing. (Bless, *op. cit.* pp. 25–6)
- 23 Alfred H. Barr Jnr, *Cubism and Abstract Art* (1936), reprint London, 1975, p. 148, pl. 150 (catalogue no. 321 in exhibition). The date given in Barr, 'before 1924' may be based on the Stam article in *De 8 en Opbouw* of the

previous year (see note 22). The earliest example of the Red Blue chair being given 'preferential treatment' over the other early 'experimental' furniture such as the Buffet and the High Back chair seems to be the price list c. 1923, referred to above (see note 4), where it is the only piece which could also be bought in a better quality finish and materials from an art-dealer, as well as from a manufacturer. Its exhibition in Barr's MOMA exhibition in 1936, gave it a renewed currency as a 'classic' of modern design. From here probably dates its trajectory as the iconic artefact of De Stijl.

- 24 The De Stijl retrospectives in the early 1950s held at the Stedelijk Museum, Amsterdam, the Venice Biennale and the Museum of Modern Art, New York stimulated a renewed interest in Rietveld's early furniture and new custom from museums and collectors. Van de Groenekan continued to make these pieces to order until the rights were sold by Rietveld's heirs in 1971 to Cassina who manufactured the Red Blue chair, the End table and the Zig-zag chair in their line of 'modern classics'. (See note 62.)

The Buffet seems to have been made in only one example, exhibited in Oud's model flat and subsequently purchased by the architect Piet Elling. It was later destroyed in a fire. No further examples were made until Rietveld and Van de Groenekan reconstructed an example for the 1951–2 Stedelijk/Venice/MOMA shows. Van de Groenekan subsequently made a number to order in the 1950s and 1960s.

- 25 Küper 1983, op. cit., p. 22. Along with the Child's high chair, the High Back chair, the Military chair and stool, the Child's cart is also included in the exhibition price list as manufactured by Cvt Hullenaar.
- 26 The play element in Rietveld's work has not been sufficiently investigated, although the origins of his experimental work in early designs for the children of clients has been documented by Küper, (1983, op. cit., passim.).

Rietveld's clients in the early 1920s were mainly young professionals living in or around Utrecht: artists, architects, lawyers, and doctors. Although this clientele was probably wider than hitherto thought, it was almost certainly restricted to the middle classes (apart from the captive clients of the Catholic Military Home).

Doctors frequently feature as the clients and patrons of early modernist architecture and design. This is undoubtedly connected with the obsession with fresh air, health and hygiene in modernist design and architectural ideology of the period. This provided critics of modernist architecture and design with ammunition to hint at a 'clinical' atmosphere, as did J. G. Wattjes in reviewing Rietveld and Truus Schröder's design for the Amsterdam apartment belonging to Schröder's sister

An and her paediatrician husband, Rein Harrestein. (J. G. Wattjes, 'Verbouwing v/h woonhuis Weteringschans 141, A'dam, Architecten: Mevr. Schröder-Schröder en Rietveld', *Bouwbedrijf*, vol. 4, 1927, no. 6, p. 137.)

One of Rietveld's earliest, and most frequently illustrated interior designs was for the surgery of Dr Hartog in Maarsen (1922). In the price-list in the Rietveld Schröder Archive, the Child's cart is advertised 'as purchased by Dr Müller, gynaecologist'. Rietveld designed a nursery for Dr Müller's children which was furnished with a number of his early experimental pieces.

- 27 B. Friedman, op. cit., p. 39. For Kandinsky's course and questionnaire, see C. V. Poling, *Kandinsky's Teaching at the Bauhaus*, New York, 1986, pp. 72ff. Contrary to what has often been asserted, Rietveld seems not to have exhibited anything at the Bauhaus exhibition in 1923, although he was probably invited to. His work, however, would have been well known from *De Stijl* and from Van Doesburg's lectures in Weimar which were attended by many Bauhaus students and staff. Similarities between Kandinsky's teaching and questionnaire and Rietveld's Wheelbarrow could be explained by the parallels in their work of this time with the then being developed theories of Gestalt psychology. (See Baroni, op. cit., p. 48; Paul Overy, 'Gerrit Rietveld: Furniture and Meaning', in Tony Knipe & John Millard (eds), *2D/3D: Art and Craft Made and Designed for the Twentieth Century*, exhibition catalogue, Laing Art Gallery, Newcastle & Northern Centre for Contemporary Art, Sunderland, 1987, p. 46.) I have discussed at length elsewhere the correspondences between Gestalt theory, the ideas in Kandinsky's theoretical treatise *Point and Line to Plane* (1926) and his paintings of the Bauhaus period. (See Paul Overy, *Kandinsky: The Language of the Eye*, London & New York, 1969, passim.)
- 28 Jan Wils, 'Symmetrie en Cultuur', *De Stijl*, vol. 1, no. 12, pp. 137–40. Two pieces of Wils asymmetrical furniture are illustrated in J. Wils, Geneva, 1930, pp. 47 & 48. There is also an interesting reproduction of an asymmetric grave designed by Wils (p. 46).
- 29 The design for the Berlin room has been most coherently discussed in Nancy Troy, *The De Stijl Environment*, Cambridge, Mass., and London, 1983, pp. 129–34, illustrated in colour, p. 158, pl. 59. It was commissioned for the 'Juryfrei Kunstschau' (Juryless Art Exhibition) held in Berlin in the autumn of 1923. This exhibition was held immediately after and in the same building as the 'Grosse Berliner Kunstausstellung' (19 May to 17 September 1923) where Lissitzky's *Proun Space*—a full size environmental work—had been shown. Alan Birnholz has suggested that 'the impetus toward Lissitzky's

- creation of an actual environment according to the Proun concept probably came from Van Doesburg, who was close to Lissitzky at this time'. (Alan C. Birnholz, 'El Lissitzky', Ph.D. dissertation, Yale University, 1973, p. 168, quoted in Troy, op. cit., p. 124.) The Huszár/Rietveld design was intended to be a room 9 metres square. It shows certain similarities to Lissitzky's *Proun Space*. Lissitzky later designed a Room for Constructivist Art for the 1926 Internationale Kunstausstellung in Dresden and a Room for Abstract Art (Abstrakte Kabinett) for the Provinzialmuseum in Hanover which were 'environmental' settings for displaying constructivist and abstract works of art.
- 30 Rietveld made a cupboard for himself which looks similar to the model table for the Berlin project. The cupboard is now in the collection of Bertus Mulder. (See fig. 25.)
 - 31 'On De Stijl', in *G. Rietveld Architect*, exhibition catalogue, Stedelijk Museum, Amsterdam, and Hayward Gallery, London, 1971–2, np. With the End table and Berlin chair can be compared Eileen Gray's E. 1027 table (1925–8), also designed to slide close to a day-bed, and the asymmetrical Non-conformist chair (1926–8) which has only a single armrest. See also Gray's Table in sycamore and oak, which bears a much more direct relationship to the Berlin chair and the End table. Gray's piece seems not to have been published until 1968 (Joseph Rykwert, 'Un omaggio a Eileen Gray—Pioneera dal design', *Domus*, no. 469, December 1968) and its dating is uncertain. (See Jean-Paul Rayon, 'Eileen Gray: L'Etoile du Nord et L'Etoile du Sud', in *De Stijl et l'Architecture en France*, Liège & Brussels, 1985, pp. 124–6.)
 - 32 Originally there were both 'right hand' and 'left hand' versions in the Schröder house—with the broad armrest positioned on the left and right side respectively.
 - 33 According to Bertus Mulder, restoration architect of the Schröder house, who worked for Rietveld in his last years, in conversation with the author, April, 1990.
 - 34 The question of the influence of Russian avant-garde painting and design on these pieces should be considered. The early experimental pieces based on the 'Rietveld joint' may have certain visual similarities with Suprematist and Constructivist work. However, there is no question that Rietveld could have seen reproductions of such work when he first designed his experimental pieces, as these were not circulated outside Russia at that time (c. 1918–19). By 1923 when Rietveld designed the End table and the Berlin chair, Russian work was widely circulating in reproduction in Western Europe. A number of examples had been illustrated in the September 1922 issue of *De Stijl*. 'The First Russian Exhibition' had been first shown in Berlin in October 1922 and was exhibited again at the Stedelijk Museum in Amsterdam in April–May 1923.
 - 35 In 1926 Oud, who had fallen out with Van Doesburg and had ceased to contribute to *De Stijl* some years before, became the architectural editor of Arthur Müller Lehning's rival magazine *i10*, published in Amsterdam. Oud wrote to Rietveld asking him to contribute. Rietveld replied that he had already been approached by Müller Lehning and would willingly contribute, provided that it avoided commitment to a particular line, despite the fact that 'they make a point of excluding Van Doesburg.' Rietveld added: 'I know that it is impossible for you to do anything again with him, but Van Doesburg is too often accused of self-seeking. And this is partly because I myself and the others have left him to struggle on his own and then it quickly becomes personal. I defended van Doesburg a bit to this M. L. [Müller Lehning], I think one would be happy if he were able to do as much with it [*i10*] as has Van Doesburg whom he despises. You are the only one in whom I have confidence and it is for this reason that I would very much like to collaborate on this new magazine. If you were not involved in it, I certainly would not do so.'
- This letter from Rietveld to Oud, was transcribed in the exhibition 'i10 et son époque', Institut néerlandais, Paris, 1989. The letter was there dated 3 July 1927, but it must presumably be July 1926, as Rietveld writes as though the magazine has not yet appeared. The first issue was published in January 1927 and Rietveld is listed among the collaborators. He contributed two articles to *i10*, 'Nut, Constructie: (Schoonheid: Kunst)', and 'Inzicht' (*i10*, vol. 1, no. 3, pp. 89–92; *i10*, vol. 2, no. 17/18, pp. 89–90). The former is translated as 'Utility, Construction; (Beauty, Art)', in Tim & Charlotte Benton with Dennis Sharp, *Form and Function: A Source Book for the History of Architecture and Design, 1890–1939*, London, 1975, pp. 162–3; the latter as 'Insight' in Theodore Brown, *The Work of G. Rietveld, Architect*, Utrecht, 1958, pp. 160–1. These are amongst the most important of Rietveld's early writings, fuller than anything he had published in *De Stijl*. A number of his architectural designs were also published in the magazine.
- Despite his loyalty to Van Doesburg when alive, when asked to contribute to the 1932 Van Doesburg Memorial Issue of *De Stijl* by Oud (who helped Nelly Van Doesburg edit this) Rietveld declined saying that he did not believe in eulogizing the dead. (Letter from Rietveld to Oud, 1931, Oud Archive, Nederlandsche Architectuurinstituut, Rotterdam/Amsterdam, cited by Bless, op. cit., p. 80.)
- 36 Van Doesburg had been living and working in Weimar

- in 1921 and 1922, although returning frequently to Holland, in particular for his Dada tour with Kurt Schwitters in early 1922. In May 1923 he moved permanently to Paris, initially to work on the De Stijl architectural exhibition which was shown at the Léonce Rosenberg Gallery in October–November 1923. Rietveld made the model of the Hotel Particulière for this exhibition and contributed some modifications to its initial design (by Van Eesteren). He worked on this in Holland and does not seem to have come to Paris. (For the 1923 De Stijl exhibition and De Stijl influence on Le Corbusier, Mallet-Stevens and Eileen Gray, see *De Stijl et l'Architecture en France*, op. cit., 1985, passim. For Del Marle see Valentin Bresle, *Del Marle Peintre*, Paris & Lille 1931; Yves-Alain Bois, 'Mondrian en France, sa collaboration à *Vouloir*, sa correspondance avec Del Marle', *Bulletin de la Société de l'Histoire de l'art français*, 1981, pp. 281–98.)
- 37 Like Hannes Meyer, Stam, Merkelbach and Van Loghem all went to work in the Soviet Union for various periods in the late 1920s or early 1930s. Rietveld's politics at this time were probably what in England would have been called 'fellow-travelling'. In the late 1920s he was the Utrecht secretary of the Filmliga, the film society founded by the documentary filmmaker Joris Ivens and the critic Menno Ter Braak to show Soviet films by Eisenstein, Pudovkin and others which were banned from public showing in the Netherlands at the time. (Bless, op. cit., pp. 81–3.) In 1956 Rietveld was commissioned to design a carillon in Washington as a gift from the Dutch to the American people. The US government refused him a visa and the commission was cancelled. (*Ibid.*, p. 150.)
 - 38 Mart Stam, 'Away with the Furniture Artists', in Werner Gräff, *Innenraume*, Stuttgart, 1928, pp. 128–30, translated in Tim & Charlotte Benton, op. cit., pp. 227–8.
 - 39 Christie's, Amsterdam, Sale catalogue, 27 May 1986, p. 48; Brown, op. cit., p. 84.
 - 40 Brown, op. cit., p. 88; Adolf Schneck, *Der Stuhl*, Stuttgart, 1928, p. 56.
 - 41 Christopher Wilk, 'Furnishing the future: Bentwood and metal furniture 1925–1946,' in Derek E. Ostergard (ed.), *Bentwood and Metal Furniture 1850–1946*, American Federation of Arts, New York, 1987, p. 148. Rietveld and the Rasch brothers' use of bent plywood predates Aalto's designs for bent plywood furniture by several years. Aalto's 'Paimio' lounge and stacking chairs did not appear until 1931–2. The Luther company in Tallin, Estonia, had been producing bent plywood seats under the trade name of 'Luterma' since the end of the nineteenth century, mainly for use on American and British tramcars and for benches in railway station waiting rooms. Aalto visited the Luther factory soon after qualifying as an architect. (*Alvar Aalto: Furniture and Glass*, exhibition catalogue, Museum of Modern Art, New York, n.d. [late 1980s], p. 3.) Giedion illustrates an American bent plywood chair patented in 1874, now in the Museum of Modern Art, New York, (Siegfried Giedion, *Mechanization Takes Command*, New York (1948), 1969, p. 504.)
 - 42 Jane Beckett, 'W. H. Gispen and the development of tubular steel furniture in the Netherlands', in Barbie Campbell-Cole & Tim Benton (eds), *Tubular Steel Furniture*, London, 1979, p. 31; B. Friedman, op. cit., p. 44.
 - 43 See Timmer, op. cit., passim. The Metz archives are not currently available for consultation and it is not certain exactly how many designs by Rietveld were marketed by the firm.
 - 44 Van der Leek also designed lettering and packaging for the firm. (Illustrated B. Friedman, op. cit., p. 66.)
 - 45 A Breuer tubular chair with fabric seat and back was advertised in a Metz catalogue c. 1935 for 40 guilders. Even c. 1937 the Z chair cost between 8.50 and 9.75 guilders, depending upon finish. The Crate armchair cost 5.95 guilders c. 1935. (See Timmer, op. cit., p. 130; illustrations pp. 138 & 141.) It was also cheaper than the furniture designed for Metz by Penaat.
 - 46 Banham, op. cit.
 - 47 The way out of the 'impasse' of the Berlin chair and End table was the design of the Schröder house. Some might consider this an 'impasse' too. However it seems more fruitful to consider it is an 'experiment' which fed into Rietveld's 'regular' later architectural work, as does Bless in the essay cited above (note 15). (See Paul Overy, 'Introduction', in Paul Overy, Lenneke Büller, Frank den Ouden & Bertus Mulder, *The Rietveld Schröder House*, Guildford & Cambridge, Mass., 1988, passim.)
 - 48 For the Birza chair, see note 39. In 1942 Rietveld designed and made a prototype for a chair made from a single sheet of perforated aluminium. The design was apparently inspired by the design of aeroplane pilots' seats. Rietveld refers to his interest in one-piece construction in an article on the chair, 'De Stoel' published in *De Werkende Vrouw*, Year 1, no. 9, September 1930, p. 244. This magazine was edited by Mrs Schröder's sister, An Harrestein (see note 26). The Harresteins were radical intellectuals close to the Dutch Communist Party. However, the magazine was probably aimed at middle-class women at work rather than working-class women. This article, which as far as I know has not been translated into English, discusses the development of the modern chair with reference to both ergonomic and constructional considerations.
 - 49 What was probably the first prototype, now in the

- Stedelijk Museum, is constructed from a flat-section metal frame to which a skin of moulded and bent fibre is attached. The fibre tended to tear at the edges and where the material was bent. In another early prototype, also now in the Stedelijk, Rietveld screwed four separate plywood planes within a similar flat-section metal frame. (Marijke Küper and Mart van Schijndel, 'Der Sitzgeist: Over het ontstaan van de Zizagstoel', *Jong Holland*, vol. 3, no. 2, May 1987, p. 5, ill. 3 & 6.)
- 50 A wide representation of tubular steel chair designs, including many examples of the cantilever chair, are illustrated in Jan van Geest & Otakar Mácel, *Het Museum van de Continue Liin/The Museum of the Continuous Line*, exhibition catalogue. Amsterdam, 1986.
- 51 Illustrated in W. van Tijen, *De 8 en Opbouw*, vol. 9, no. 3, 12 February 1938; Küper and Schijndel 1987, op. cit., p. 6, ill. 8.
- 52 The sketch is in the Nederlands Architectuurinstituut, Rotterdam/Amsterdam, illustrated in Küper and Schijndel, op. cit., p. 8, ill. 14.
- 53 There are also two versions of the Child's high chair, a plain version based on the standard Z chair and an extraordinary trapezium-shaped version decorated with carved flowers and a bird, which seems to have been worked out jointly in the early 1940s by Rietveld and Truus Schröder for the Jesse family. (Ida van Zijl, 'Drie zigzagkinderstoelen', in *Rietveld Schröder Archief*, exhibition catalogue, Centraal Museum, Utrecht, 1988, pp. 199–202.) The plain version was made for the Fesevar family's first child in 1940, to match their Z chairs. The table top can be turned. It is now in the Stedelijk Museum, and is illustrated in *Rietveld, from the Collection of the Stedelijk Museum*, Amsterdam, 1981, no. 95.
- 54 Küper and Schijndel, op. cit., p. 6.
- 55 Ibid.
- 56 The design of the chair has generally been given as 1934, but Küper and Schijndel have convincingly demonstrated that the first designs must date from 1932. A sketch of an interior with Z chairs apparently made from a single piece of material was reproduced to illustrate an article by Ben Merkelbach in one of Rietveld's architectural designs of the period on the architectural magazine, *De 8 en Opbouw*, vol. 4, no. 1, 6 January 1933, pp. 6–7 ('Ontwerp voor een woonhuisje Architect G. Rietveld.'). Rietveld must, therefore, have been working on the design of the chair since at least late 1932. (Küper and Schijndel, op. cit., p. 42.)
- 57 Rietveld's clients often added cushions to his furniture. There is a photograph of the painter Charley Toorop seated in a grey-painted Red Blue chair c. 1934 propped up with cushions or pillows. (Illustrated in B. Friedman, op. cit., p. 27.) Toorop once complained that she was always banging her ankles on the protruding joints of the chair. ('Interview with Truus Schröder' in Overy et al., 1988, op. cit., p. 92.) There is also a photograph of the music room designed for the poet Til Brugman in The Hague by Vilmos Huszár and supplied with Rietveld's experimental furniture which shows a white-painted Red Blue chair with two cushions. (Photograph by Hanna Höch reproduced in *Hannah Höch, 1889–1978: Collages*, exhibition catalogue, Institute for Cultural Relations, Stuttgart, 1985, p. 47. The room was used as a studio by Höch, who lived with Brugman for some years.) In the well-known photograph of Dr Hartog's surgery in Maarssen, the High Back chair in which the doctor sat behind his desk has a cushion. In the Fondation Arp, the studio house designed for Hans Arp and herself by Sophie Taeuber Arp at Meudon, there are two of Rietveld's Beugelstoels supplied with cushions embroidered by Taeuber Arp.
- 58 Baroni, op. cit., p. 145.
- 59 Cited by Baroni, op. cit., p. 145.
- 60 Some of the drawings are in the Rietveld Archive, Netherlands Architectuurinstituut, Rotterdam/Amsterdam, others in the Rietveld Schröder Archive, Centraal Museum, Utrecht.
- 61 Peter Drijver and Johannes Niemeijer, *How to Construct Rietveld Furniture*, Delft, 1986.
- 62 Since 1971 Cassina have owned the rights to produce Rietveld's furniture which they purchased from Rietveld's heirs. Daniele Baroni, the author of the standard reference book on Rietveld's furniture, was the consultant on the initial reconstruction of the first two pieces produced, the Red Blue and the Zig-zag. Filippo Alison, who wrote the introduction to Baroni's book, was also involved as a consultant. Currently in production are the Red Blue chair, the End table (rechristened 'Schröder 1'), the Zig-zag, and (produced for the centenary of Rietveld's birth in 1988) an upholstered armchair and curved sofa designed in 1935 (previously unnamed, but christened by Cassina 'Utrecht'). Cassina have also taken over from Van de Groenekan the making of other pieces like the Buffet, the Berlin chair and the Crate furniture for museums. Van de Groenekan, who now mainly restores Rietveld furniture, received some financial compensation from the Rietveld heirs.
- The four pieces currently produced by Cassina form part of a collection called 'Cassina I Maestri' (Cassina Masters) which also includes Le Corbusier/Jeanneeret/Perriand, Mackintosh, Asplund, and Wright. Cassina's ownership of the rights to produce Rietveld furniture commercially does not exclude those who want to make this themselves for their own use. Under the colophon of Drijver and Niemeijer's book (1988, op.

- cit., p. 52) is printed: 'The information from this edition may not be used to produce furniture for selling purposes, but only for own use. Since 1971 the Italian firm of Cassina owns the rights to produce Rietveld furniture for commercial trade.' Another Italian firm, Alivar, also now makes examples of the Red Blue chair, the End table and the Zig-zag chair, at a considerably lower price than Cassina, as part of a collection called 'I Classici del Mobile Moderno' (The Classics of Modern Furniture) which includes pieces by Breuer, Stam, Le Corbusier/Perriand/Jeanerret, Mies van der Rohe, Gray, Herbst, Mallet-Stevens, Mitzutani, Aalto, Hoffmann, Bertola, Mackintosh, Chareau, Noguchi, Bugatti, the Eames and Gaudi. Alivar was recently sued in the Italian courts by Cassina for breach of copyright. Cassina lost the case.
- 63 See Küper, op. cit., and B. Friedman, op. cit., for illustrations of some of these.
- 64 Kras has drawn attention to the roughness of execution of the pieces made by Rietveld himself. (In B. Friedman, op. cit., p. 17.) This must have struck anyone who has looked at them closely. It is evident from the early furniture which Rietveld made in a Dutch Arts and Crafts style that he was capable of high quality cabinet-making (see figs. 41 and 42). The rough finish of the prototypes of his experimental furniture was deliberate and calculated. The interior fittings and built-in furniture in the Schröder house, which were made by Van de Groenekan, were also deliberately quite roughly finished. For this reason, when restoring the interior of the house in 1985–7, Bertus Mulder employed carpenters rather than cabinet-makers. Even so he had to restrain them from finishing it too well. (Bertus Mulder, information given in conversation with the present writer, 14 February 1987.)
- 65 Letter from Rietveld to Van Doesburg, published in *De Stijl*, vol. 2, no. 11, September 1919, p. 133, to accompany an illustration of the chair, translated in Brown, op. cit., p. 21. The dimensions of the chair have varied considerably over the years. It does not appear to have been standardized until Cassina began to produce the chair in 1972. (Kaspar Jansen, 'De Millimeters van Rietveld', *NRC Handelsblad*, 19 August 1983, cited by Nancy Troy, 'Rietveld's Modernism', in B. Friedman, op. cit., p. 9.) The different measurements collected by Jansen from a number of early examples are reprinted with additional measurements from a drawing by Rietveld in Drijver & Niemeijer, op. cit., p. 11.
- 66 Translated in the catalogue, G. Rietveld, *Architect*, op. cit., np.
- 67 Bless, op. cit., p. 16.
- 68 G. Rietveld, 'Aanteekeningen bij kinderstoel', *De Stijl*, vol. 2, no. 9, July 1919, p. 102, translated in Brown, op. cit., p. 22.
- 69 Brown, op. cit., p. 21. Cf. Van Doesburg's views on craft, which he developed in *The Will to Style* (1922) and elsewhere: 'Craftsmanship is attached to an individualistic system of life, whereas the machine represents a decisive element in our economic and collectivist style. Craftsmanship humiliates man by reducing him to the function of a machine, while the right use of the machine represents the only way of achieving the contrary effect: social emancipation.' (Quoted in Baroni, op. cit., p. 45.)
- 70 In Rietveld's father's workshop, both machine and hand methods of production were employed. Rietveld's father specialized in producing reproduction furniture in Louis XV and XVI or Dutch Renaissance style for the professional middle classes of Utrecht and in fitting out the interiors of banks and high-class shops. Rietveld learned the skills of cabinet-making from his father and his assistants, specializing in the walnut furniture inlaid with ebony which was popular amongst the Utrecht bourgeoisie in the early years of the century. (Bertus Mulder, 'Op zoek naar de weelde van de soberheid; herinneringen aan een persoonlijk contact met Gerrit Rietveld', *architectuur/bouwen*, vol. 4, no. 6/7, 1988, p. 69.) However, much of his work was routine carpentry, joinery and shop-fitting. At this time Rietveld, like his father, would produce furniture or fittings in whatever style the client wanted, from severe 'Arts and Crafts' furniture in the manner of Berlage, as in one of his earliest commissions, for the gatehouse of a castle near Utrecht, to imitation Louis XV furniture and interior decoration for the ornate and pompous conference room of a Utrecht bank. (Brown, op. cit., pp. 14–15.)
- 71 Brown, op. cit., p. 22.
- 72 Troy, in B. Friedman, op. cit., p. 10.
- 73 Siegfried Giedion, *Mechanization Takes Command* (1948), New York, 1969, p. 485.
- 74 Colin St. John Wilson, 'Rietveld: 1888–1964', *Architectural Review*, vol. CXXXVI, December 1964, p. 399.
- 75 Baroni, op. cit., p. 47.
- 76 Ibid., p. 42.
- 77 Carel Blotkamp, 'Een Rietveld Meubel van omstreeks 1480', *Jong Holland*, no. 4, 1989, pp. 2–4.
- 78 Rietveld could have seen these works of Mondrian exhibited at the Stedelijk Museum in October 1915. There is some controversy about whether Rietveld and Mondrian ever met. In 1955 Rietveld wrote of Mondrian: 'I never met him' (Gerrit Rietveld, 'Mondrian en het nieuwe bouwen', *Bouwkundig Weekblad*, Year 73, no. 11, 15 March 1955, p. 127.) Bless states that Rietveld supplied information to the Centraal Museum,

- Utrecht, in 1958 (for the retrospective exhibition for the seventieth anniversary of his birth), that he and Mondrian *had met*. Bless also states that Rietveld's children confirmed this; however, the contact was probably very brief. (Bless, op. cit., p. 262, note 26.) The photograph of Rietveld at the seaside is illustrated in Drijver & Niemeijer, 1986, op. cit., p. 2.
- 79 The Futurists also referred to themselves as 'primitives' in this sense (in the Technical Manifesto of Futurism); 'Noi siamo invece i Primitivi di una nuova sensibilità completamente trasformata' (We are on the contrary the Primitives of a new and completely transformed sensibility), Milan, 11 April 1910. Neither De Stijl artists nor the Futurists drew on the non-European 'primitive' sources of the Cubists or Expressionists. De Stijl artists regarded the use of such sources by the artists and architects of the Amsterdam School, who incorporated motifs from the art of the Dutch East Indies, as eclectic and impure.
- 80 Reyer Kras has pointed out that: 'One should bear in mind that the series of furniture [i.e. commercially] produced in Holland at the time as a rule did not exceed several dozens or several hundreds of pieces at most.' ('Gerrit Thomas Rietveld 1888–1964 Furniture Maker and Architect', in B. Friedman, op. cit., p. 16.)
- 81 Gerrit Rietveld, 'Utility, Construction: (Beauty, Art)', *110*, Amsterdam, vol. I., no. 3, 1927, pp. 89–92, translated in Tim & Charlotte Benton, op. cit., pp. 162–3.
- 82 With reduced incomes due to the worldwide slump which followed the Wall Street crash of 1929, the middle-class customers of shops like Metz were prepared to buy relatively cheap, but well-made furniture like the Crate furniture and the Zig-zag chair, where previously they would probably have bought something more traditional and less austere.