

DUCHAMP

LOVE AND DEATH, EVEN

Juan Antonio Ramírez

TRANSLATED BY
ALEXANDER R. TULLOCH

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Also

Marcel Duchamp, by profession ‘imprimeur en taille douce’ (a wood-engraver), had fair eyebrows, grey eyes, a medium-sized nose, a round chin and an oval face and was 1.68 metres tall.¹ He asked for nothing,² lived on a limited budget, had few possessions (real estate, cars, etc.) and did not even possess his own library.³ He never had a family in the strict sense of the word. When, in 1954, he married Alexina Sattler, the former wife of Pierre Matisse, it was too late (at least, this is what he said) to ‘produce’ any biological descendants. He travelled a great deal, always with a minimum of luggage, and at times in nothing more than the clothes he stood up in.⁴ His whole existence was governed by the need for economy, although this should not be understood in the bourgeois sense of planned accumulation. To consume and produce the minimum possible was for him an elegant way of preserving one’s liberty. Duchamp did not allow himself to be captivated, either by a particular woman or by an artistic or literary movement.⁵ Nobody knows for certain what he lived on; not even Duchamp himself was able to come up with a satisfactory answer to that question. It is obvious that economic matters held little interest for him: ‘. . . money always passes right over over my head,’ he confessed to Cabanne.⁶ Between 1915 and 1923, he spent the greater part of his time in New York, working on the *Large Glass*; this was the era of Beatrice Wood’s biting assessment of him: ‘Marcel, at the age of 26, had all the charm of an angel who spoke *slang*.’⁷ His personality was also recalled, many years later, by Henri-Pierre Roché, the other element in this triangle of friends, in an unfinished biographical novel:

Victor [Duchamp] has neither needs nor ambitions, he lives for the day. He belongs to nobody . . . He says that he takes a deep breath and looks at the world without wishing to exert any influence on other people. That is all. He says that the only people who should have children are those who have a vocation for doing so, and that the more possessions one has in this world, the less free one is.

And further on: '[Victor] has to be alone, he is a loner, meditative and pensive. He is, in his own way, a preacher. He is working for a new morality.'⁸

This biographical sketch needs to be completed by the addition of some of Duchamp's intellectual characteristics. 'The word yes', wrote William Copley of Duchamp, 'was virtually the whole of his vocabulary. Yes can be said without any emotional expenditure. Saying no brings a flush to the face.'⁹ This testimony coincides with that of other friends and the artist's closest relatives. Paul Matisse (the son of Alexina and editor of the posthumous *Notes*) said that his stepfather 'saw no difference between one conviction and its opposite; from his point of view each of them was nothing more than the reverse of its opposite . . . To assent was his way of preserving his liberty.'¹⁰ It is easy to see how this approach could make discourse difficult and ruin the chances of developing any argument.

But this is a rather simple way of interpreting Duchamp. The reality is not that he agreed foolishly or cynically with any affirmation, but that he placed himself *beyond it*, in an intellectual territory where many arguments lack sense. I think that he had something important to say to us regarding the well-known principle of contradiction.¹¹ When the scandal exploded in New York over the urinal which he displayed at the *Exhibition of Independent Artists* (illus. 40), it revolved around the same doubts which had arisen previously about *Nude Descending a Staircase* (illus. 290): 'Is this something serious, or is he joking?' Louise Norton's answer seems to me to be very revealing: 'Perhaps both at the same time! Or is that not possible?'¹² There was no assent, then, in the face of antithetical positions. Nor was there a *dialectical* superseding of them, but rather what we might characterize as 'integration through juxtaposition'. It was as if one were to apply the metaphor of transparent images to propositions. One idea is added to another (placed above it), and in this way neither is destroyed; this does not prevent us from recognizing or isolating the initial constituent formulations (forms) in a new configuration, should we wish to, and thus certifying that configuration's apparent incompatibility. This is not a binary logic which results in exclusion in the sense of 'heads or tails', even though the monetary metaphor would, in Duchamp's case, permit both sides to be visible all the time. This, then, is a transparency of arguments, not the foolish acceptance of all of them through their separateness. Heads *and* tails.

This epistemological consideration is important for an understanding of our subject. In a letter to André Breton (4 October 1954), Duchamp attempted to address a few of the points raised by Carrouges' book *Les*

machines célibataires, writing, among other things: 'For me, there is something more than the *yes*, the *no* and the *indifferent*, and an example of this would be *an absence of this kind of investigation*.¹³ In writing this, he not only pulled the rug out from underneath the spiritualist interpretations of the *Large Glass*, but affirmed his right to remain silent in the face of many such questions and problems. Duchamp did not wish to reply to all of the questions concerning human existence, nor to touch on all of those themes which are of interest to the historian of contemporary art. It might be good to remember this now, when there are so many fervent devotees who saw Duchamp as a prophet capable of bringing comfort to the troubled consciences of the modern world and as the founding father of countless artistic movements. In Duchamp, the 'absence of questioning' (silence) did not stand in opposition to other statements or fixed propositions, but to the discoveries of a new logic. Symbolic adverbs: *moreover, also, including*; that is to say, *même*.

This, then, is how one should approach the crucial matter of meaning. There is no need to deny Duchamp's insistence that we are, as viewers, the ones who complete the work by participating actively in the creative process,¹⁴ since by *also* being independent from it the artist was able to have one or several intentions. And he [the artist] may have hinted at a familiarity with such things by bequeathing to us (together with the works themselves) his notes, statements, drawings, interviews, letters, etc. The art historian does not deny the right to re-invent or recall the past from the *inevitably* confrontational and biased trenches of the present, but he or she must take into account the evidence provided by these objective documents. Duchamp left us a great deal of very explicit material, and it is incredible that, even when we have seen it all, his works should still invite so many outrageous interpretations. This book is an attempt to place those works in context. All historic, artistic narrative has to be plausible, and I have tried to make my view of Duchamp agree with what is said in the texts and works at our disposal, at the same time (also) associating it with the concerns of the present day. This is the only way I can understand the meaning of scientific truth. 'I like the word "believe,"' Duchamp said to Sweeney. 'Generally speaking, when somebody says "I know", it is not that he knows, but [that he] believes.'¹⁵

I believe, then (again), that the works of this artist possess a significance which is not attributed to him in an arbitrary manner by the viewer. It is normal for several apparently opposite meanings to be mounted one on top of the other in the same work. Duchamp was conscious of this fact, and his friend Louise Norton, in the famous article on

Fountain (1917), was pleased to point to the liberation from 'monogamy' between objects and ideas which had been signalled by the urinal affair: an object traditionally associated with a certain biological function was now *also* appreciated for its 'pure simplicity of form and colour'.¹⁶ We can discover many of these meanings by careful examination of the documents and by comparing them with what we already know. I have tried particularly to reconstruct the cultural ecosystem and ask: What kind of things might Duchamp have seen or read; when and how might these things have affected him; with which intellectual wave and artistic movement was he associated at any given moment? This is not a novel methodological proposal for an historian, but it does surprise me, given the enormous importance of the man, that research has not progressed further along these lines.

In the case of certain intellectual and visual sources, we are presented with an interesting problem: the contemporary world offers us an almost infinite range of industrial products and more or less identical technical and scientific images, and it is almost impossible at times to recognize (or find out) which of them might really have inspired Duchamp. I therefore believe that it is acceptable to study the relationships from the point of view of approximation: at the beginning of the century, most spoked mill-wheels looked alike, and the same can be said of industrial machinery, glass moulds, chemical apparatus, etc. It is sufficient to examine a few of these things in order to discover a typical image for them. Commercial and industrial catalogues contained reproductions which were repeated in different annual publications. This makes it possible for us to accept them as visual sources for certain works, although they may date from a later time, since it is almost certain, in the majority of cases, that another identical illustration existed in an earlier publication. The important thing is to compare the appearance of certain products and processes with Duchamp's inventions. This is an artist whose work lends itself admirably to the application of the 'iconology of connotations' that we have already utilized to analyse architecture on more than one occasion.¹⁷

We owe a large debt to the contextual documents with their dates and precise technical suggestions. Duchamp's later recollections, on the other hand, have to be approached with care, since Duchamp, more than anyone, was aware of his own weaknesses and inconsistencies. 'It is curious to note,' he said to Marcel Jean in 1952, 'how fragile the memory is, even for the important times in one's life. This is, moreover, what explains the fortunate fantasy of history.'¹⁸ And on another occasion, fifteen years later:

There is always an alteration, a distortion in [our] memories, and even when we relate something, we change it without realizing it, either because we do not have an accurate memory of something or because we find such distortions entertaining.¹⁹

I suppose that there is distortion in this book ‘for the fun of it’, but I have attempted to keep it to a minimum, and above all I been at pains to illustrate the harmony between the two most important obsessions in Duchamp’s work: to discredit positive science and to discredit the solemn seriousness of The Truth (in the singular and with capital letters). We shall insist later on his proximity with Jarry’s pataphysics and his parodic vision of progress: ‘Science with a capital “S”, or rather, as this is still not imposing enough, Science with a large SCIE’.²⁰ Duchamp’s other obsession was the primacy of love: ‘Yes and love,’ repeated Man Ray.²¹ When Cabanne asked about the role of eroticism in his work, Duchamp replied that it was ‘Enormous. Visible or not or underlying in every case.’²² And he told Jouffroy that it was the only thing he took seriously.²³

It was obviously a question of overcoming (and ridiculing) the romantic myth of the *Gesamtkunstwerk*: only love was a ‘total work of art’. Eroticism, considered as an *-ism*, erases the habitual strategies of an artistic career, but really demands strict discipline.²⁴ H.-P. Roché, in *Victor*, had the main character (Duchamp) say to Patricia (Beatrice Wood):

Love: ascesis. Its suppression: another ascesis . . . It is necessary to avoid spending a long time together. People have to learn to spend time apart so that they can rediscover each other. Each must avoid devouring the other or wishing to be devoured . . .²⁵

It would seem that in this area, as in his other works, Duchamp claimed to avoid ‘all formal lyricism’,²⁶ which explains his recourse, over a period of ten years, to the mathematical metaphor of the fourth dimension.²⁷

By paraphrasing the artist, we may speak of ‘an eroticism of precision’, of the machine, which functions additionally as a powerful intellectual metaphor. There was an evolution in this area, too, and it may be that the Duchamp of the 1930s and ’40s, like the Surrealists, maintained a position which was more obscurely ‘literary’ concerning love than the position he had adopted between 1915 and 1920. What cannot be denied is his constant preoccupation with this theme throughout his career. Duchamp ‘spoke’ continually about eroticism (love and sex), and he did so using terms which were at the limit of what was considered socially acceptable. This may explain the conscious and unconscious censorship which has

been imposed on his works. The Duchamp introduced to us in the textbooks is dressed in the apparel of the iconoclastic artist, which is another way of covering up 'his private parts'. He has also been presented to us as a type of benevolent, prototypical Pop artist, as if we were dealing with Andy Warhol's indulgent grandfather. I have attempted to fathom his original intentions, to strip bare the personality (*même*), while hoping not to diminish the subversive power of his ideas, which remain intact today, 30 years after his death.

This book is the result of work undertaken in various places and under a variety of circumstances. I undertook the first systematic examination of the subject, together with other intellectual interests, in Paris (1988–89) at the Bibliothèque d'Art et d'Archéologie (Fondation Jacques Doucet) and at the Centre Georges Pompidou; this initial effort was made possible by a post-doctoral grant from the Spanish Ministry of Education and Science and permission from my university. During the academic year 1990–91, I organized a course on Duchamp for Ph.D. students as part of the joint syllabuses of Madrid's three universities (Autónoma, Complutense and UNED); it was repeated, with minor variations, at the Universidad Hispanoamericana de La Rábida. This post-graduate activity was very useful for applying some sort of system to my ideas, and the contact with students led me to revise my theories. I am grateful that teaching always demands order and clarity.

I received an invitation from the Getty Center for the History of Art and Humanities to undertake research at its headquarters in California for the academic year 1991–92. This was where the text expanded, during nine months of total dedication in a perfect intellectual climate. What was intended initially as a brief essay to accompany what I had already published on Dalí²⁸ finished up as a book in its own right. I would not have been able to write it anywhere else or under any other circumstances; for good or ill, the Getty Center is to blame. I must express my gratitude to the entire permanent staff there, but it is impossible to forget the subliminal impact of the many informal conversations I had with other guest scholars. I am far more indebted to them than may be apparent.

During my stay, I also made working visits to the East Coast. I examined the collections and archives at the Philadelphia Museum of Art, having been granted permission to do so by the director, Anne d'Harnoncourt. A constructive conversation with her allowed me to clarify a number of obscure points, particularly regarding the materials and arrangement of *Etant donnés*. In New York, the Museum of Modern

Art's library allowed me to acquire additional useful information. In New Haven, I was able to consult the archives of Katherine Dreier, a photocopy of which is in the Yale University Art Gallery. My thanks, then, to those in charge of these institutions and those who dealt personally with my requests.

Finally, there is one thing I am sure of: this book does not say everything about Marcel Duchamp. You will find a point of view here that differs from the one adopted by others, obviously, but I would not wish to be dogmatic in my opinions. Let us add this book to the great deal which has already been said, also.

JUAN ANTONIO RAMÍREZ
Santa Monica, California
June 1992

Preface to the English Edition

There is no greater proof of the enormous prestige which Marcel Duchamp has acquired than the fact that a never-ending series of new articles, books and exhibitions is still being dedicated to him. It is impossible to provide a detailed record of these here, but I must mention one or two cultural events which have occurred since the publication of the original Spanish version of this book.

Reference must be made, first of all, to the retrospective exhibition at the Palazzo Grassi in Venice (1993), which offered a magnificent opportunity to have another look at almost all of Duchamp's works gathered together in one place. Some aspects of the exhibition came as a surprise to Duchamp enthusiasts, however. For instance, there was the extravagant lay-out of the catalogue with its mass of chronological information arranged according to the days of the month of every year of the artist's life. This meant that (and I am selecting at random) in the epigraph for 20 March we have entries which relate to 1913, 1917, 1918, 1920, 1937 and so on up to 1964; 21 March offers us information from 1905, 1926, 1935 etc. up to 1968. (See Jennifer Gough-Cooper and Jacques Caumont, *Ephemerides on and about Marcel Duchamp and Rose Sélavy 1887–1968* [Milan, 1993]). There was no biography, however, and no interpretations or discussions which might have gone beyond a mere description of events. One might say that such a failure to search for a meaning in Duchamp's works (and life) represents the virtual antithesis of my book. But I hold to my conviction that the artist put forward ideas which can have more than one 'meaning' and that there is no reason to suggest that one is more important than another.

Another surprising feature of the Palazzo Grassi exhibition was the prudery with which Duchamp's work, which is so *erotic*, was presented. The sexual theme of the *Large Glass* was hardly mentioned, and many visitors must have left the exhibition without realizing that the artist had devoted his best efforts, during the last twenty years of his life, to a work

so far removed from the puritan ethic as *Etant donnés*. It is my opinion that, because of this attitude, the exhibition failed to do justice to Duchamp's real intentions.

I have already said that I am basically concerned with the artist's works and not his life, although there is no doubt that the two must be considered as being interconnected. I have just read with great interest Calvin Tomkins' *Duchamp: A Biography* (New York, 1996), in which many well-known facts about the artist are presented in an orderly fashion as well as combined with a considerable amount of previously unpublished information and assessment. Although we do not find many ideas here which add to our understanding of Duchamp's works, Tomkins does offer a fascinating description of Duchamp the man. This has been of considerable use to me in backing up (dare I say proving) some of my hypotheses, such as my assertion that *Etant donnés* was begun under the erotic influence of Maria Martins, subsequently displaced by Alexina's influence. Tomkins has demonstrated that the Brazilian sculptress was one of Duchamp's great loves, and on this point his book and mine are in total agreement. The same could be said about many other details of our subject's intimate life.

Finally, after seeing and reading what has recently been produced about the artist, I have not discovered anything to make me change my mind about Duchamp's qualities and basic aims: the primacy of love, always, his intellectual rigour and his sense of humour. Due neither to tiredness nor to laziness, I have not seen fit to make any important changes to this book in preparation for the publication of the English edition (one or two details have been altered, but the changes are minimal). I trust that the new language will suffice to provide a new medium for my work without sacrificing its original intellectual dimension.

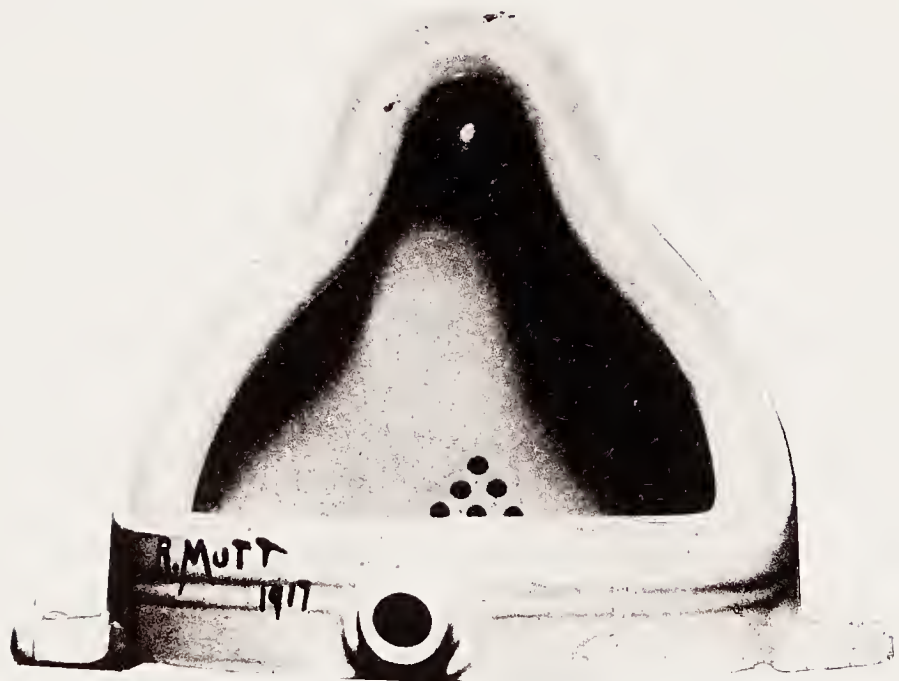
J.A. R.

Madrid

30 April 1998

I

Devising the Ready-mades



THE RUPTURE

Marcel Duchamp, 1912. All critics and commentators on modern art agree that this is a decisive year. Between 5 and 24 February, the young artist (he was not yet 25) made several visits to the Futurist exhibition at the Bernheim-Jeune Gallery in Paris. At the end of the same month, Gabrielle Buffet-Picabia took a trip in an aeroplane that was discussed at length by the three Duchamp brothers.¹ On 20 March, the Salon des Indépendents opened in which *Nude Descending a Staircase* ought to have been shown (illus. 290); as everyone knows, the work was withdrawn at the request of the governing body, whose members used Marcel's older brothers as the 'messengers'. Immediately afterwards, the painting travelled to Barcelona, where it appeared in public for the first time (from 20 April to 10 May) in the *Exhibition of Cubist Art* organized by the Dalmau Gallery. From 11 May to 5 June, the Théâtre Antoine in Paris put on a stage version of *Impressions d'Afrique* by Raymond Roussel, and one of its performances was attended by Marcel in the company of Gabrielle and Francis Picabia and Guillaume Apollinaire. Marcel left Paris for Munich on 18 June and stayed there until the beginning of October. On the tenth day of the same month, the Salon de la Section d'Or was opened, organized by the Puteaux group, and Marcel contributed four works (among them was the controversial *Nude . . .*) which had been rejected by the Indépendents. But this was not all: invited by Picabia, he went by car with him and Apollinaire to Etival (Jura), where Gabrielle's parents lived. On his return to Paris, together with Ferdinand Léger and Constantin Brancusi, Duchamp visited the fourth Salon de la Locomotion Aérienne, which was held at the Grand Palais between 26 October and 10 November. On 3 November, Marcel enrolled for a

course in Library Studies at the Ecole de Chartres, which proved very useful in view of the fact that he found employment at the Bibliothèque de Sainte-Geneviève . . .²

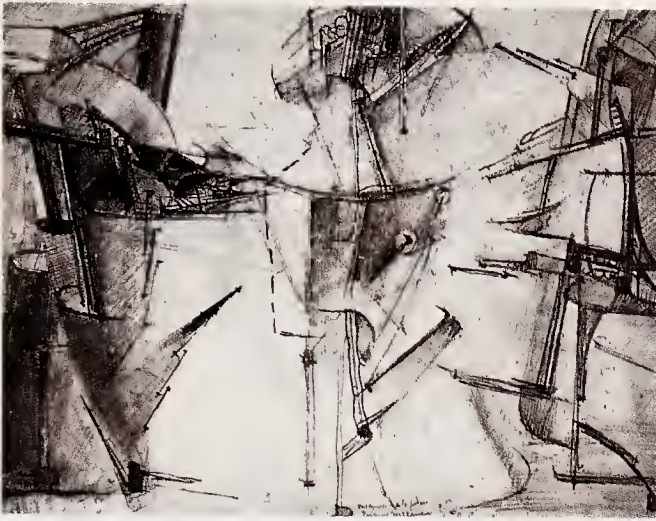
These are a few objective events, but what is their real significance in the life of Marcel Duchamp, and what were their repercussions in the history of modern art? With *Nude Descending a Staircase*, he had completed his assimilation of the techniques and resources of Cubism, and it must have been very difficult for him when he encountered the incomprehension of his brothers' friends and perhaps of his brothers as well. Or was there, in fact, a certain burlesque intention on the part of the work's creator which did not pass unnoticed in the narrow circle of 'official' Cubists? The truth is that all of Duchamp's late works are impregnated with a radical ambiguity concerning the 'seriousness' of his intentions. It is probable that in the era of the *Nude*, all of Marcel's friends and acquaintances saw him more as a humorist than as a painter in the strict sense of the word. 'Bear in mind,' he said to Pierre Cabanne,

that I certainly did not live surrounded by artists, but I did live surrounded by humorists . . . This was something completely different. I had no contact with painters at that time. Even Juan Gris, whom I got to know a little later, produced [humorous] sketches.³

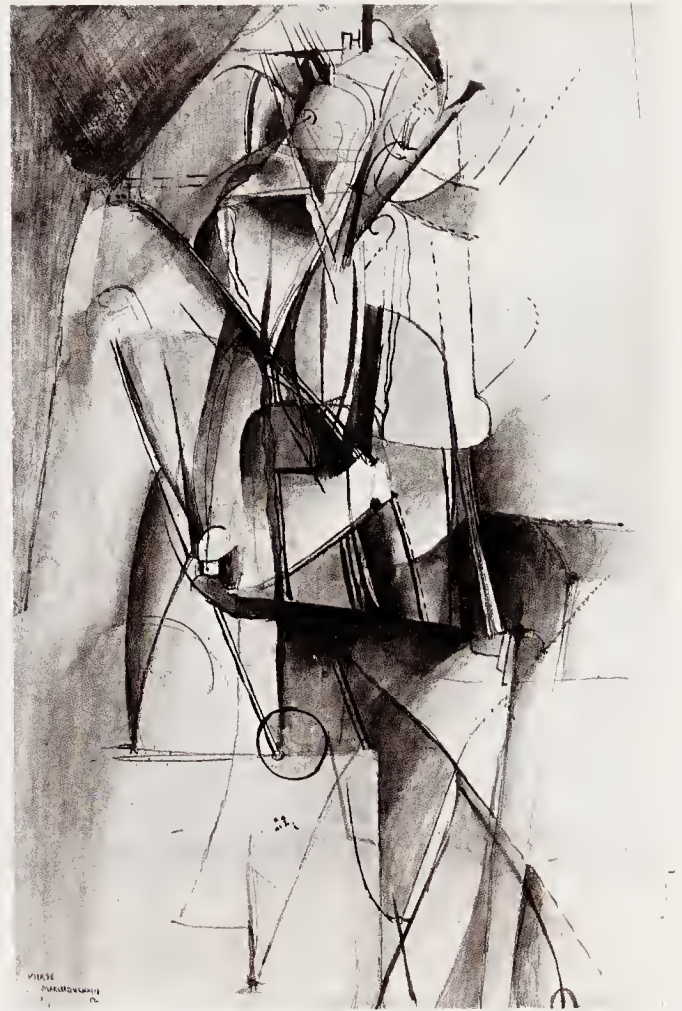
But the important point is that, rejected by the most advanced artists of the day, Duchamp, unable to turn back, regarded himself as being 'outside painting'.

Raymond Roussel came to his rescue. *Impressions d'Afrique* describes the participation of an outlandish group of shipwrecked Europeans in the coronation ceremony of an imaginary Black emperor; each of the characters exhibits some machine or contraption of his own invention that wins the admiration of all those present. The relationship between these 'marvels' is cold and apparently interminable. There is no lyricism in their expression, no concession to local colour. Roussel's text is, at one and the same time, both anti-romantic and anti-naturalistic, and shows how a work can be created which is logical and rigorous to the point of madness and yet remain distant from the conventions of any known genre. It comes as no surprise that this fascinated Duchamp, who decided to adopt Roussel as his master and guide. Much later, he said, referring to Roussel, '... as a painter it is more important to me that I should be influenced by a writer than by another painter'.⁴

The young Marcel who spent the summer in Munich, then, was not all that naïve. While there, he produced paintings and drawings which



1. *Mécanisme de la pudeur/Pudeur mécanique* (July 1912; Cordier & Ekstrom Gallery, New York) was the first attempt, according to Duchamp's own inscription, at the *Large Glass*.



2. *Vierge* (1912; Philadelphia Museum of Art), a drawing with 'mechanical and visceral' suggestions. The latent image of a praying mantis has also been detected here.

were to serve as preliminary sketches for the *Large Glass*. These works still reveal his affiliation with Cubism, but a sudden change in his themes points to new preoccupations, removed from the world of still-life and the more or less neutral landscapes which characterized the 'orthodox' Cubists. I refer here to the theme of sexuality: a title such as *Mécanisme de la pudeur/Pudeur mécanique* (illus. 1) – the first study, according to what Duchamp himself wrote on the drawing, for *The Bride Stripped Bare by Her Bachelors, Even* – already suggests a sexual universe which is different from that of the simple 'nudes', or that of the chess kings and queens which he had painted in previous months. The same might be said of the two versions of *Vierge* (illus. 2), of *Le Passage de la vierge à la mariée* and of the more elaborate *Mariée* (illus. 3, 4). The drawing *Aéroplane* (illus. 5) from the same period confirms the juxtaposition of visceral and mechanical elements that Duchamp himself recognized in the works which he



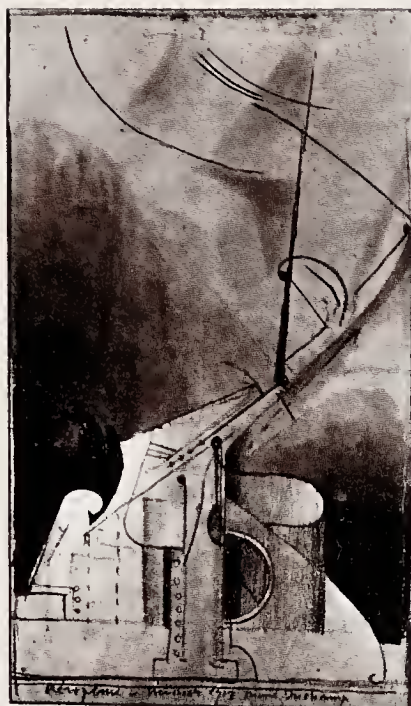
produced that summer.⁵ In Munich, there was, moreover, an artistic tradition which was very different from the French one and which lacked the institutional gap between 'fine' and 'applied arts' peculiar to Latin countries. Free of academic pressure, having been alone in a country whose language he could hardly speak, stimulated in his rejection of art as being something sacrosanct and alien to the real world, the young Marcel returned to Paris determined to abandon all of the notions he had about 'making a career' as an artist.

It could be said that he extracted the most radical results from Futurist ideology: at the aforementioned Salon de la Locomotion Aérienne, he stood in amazement in front of an aeroplane and said to Brancusi: 'Painting is finished. Who could produce anything better than that propeller? Tell me, could you make something like that [illus. 6]?'⁶ It seems logical, with such an attitude, that he would have accepted a bureaucratic job, such as that of librarian, which allowed him to survive by offering him the opportunity to nourish his keen intellectual curiosity. Having officially withdrawn from art, he now devoted all of his time to the study

3, 4. *Le Passage de la vierge à la mariée* (Museum of Modern Art, New York) and *Mariée* (Philadelphia Museum of Art) were painted in Munich in the summer of 1912. They represent the culmination of what we have termed 'visceral Cubism'.

5. *Aéroplane* (1912; Collection B. Wood, Ojai, California) testifies to the impact of Futurist ideology on the young Duchamp. There is probably a secondary, sexual meaning: 'eros-plane', simply love (I am indebted for this suggestion to Professor Esteban Pujals Gesali).

6. At the 1912 Salon de la Locomotion Aérienne, Duchamp must have admired something like this propeller, which appeared together with a 75-horsepower engine in a 1911 advertisement (see also illus. 101).



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of perspective, to reading about a wide variety of subjects (including mathematical treatises) and to complex digressions about which it is difficult to be precise. We know all of this from his notes, many of which, as is widely recognized, were destined to form the basis of the complex iconography of the *Large Glass*, or were to serve as the booklet/catalogue which accompanied it. It is clear that Duchamp gave a great deal of thought to this extraordinary work before he made a start. The famous Neuilly drawing which shows the general lay-out of the principal elements (illus. 62) dates from 1913 and not 1914, as is stated in the reproduction of the *Green Box*.⁷ Some of the annotations included by Duchamp himself are dated between 1912 and 1915, the year when he began work on glass in the true sense of the word. The *Large Glass*, then, gestated in his mind for a period of three years and slowly took shape between 1915 and 1923. We shall see that the work's final form did not materialize until 1936, when Duchamp directed its restoration following its accidental breakage in 1926.

It is clear that *The Bride Stripped Bare by Her Bachelors, Even* was the result of 22 years of speculation and intermittent periods of work. During this time (and particularly between 1915 and 1923), its creator devoted himself to this project almost exclusively and made it the very centre and reference point for all of his other activities. Duchamp himself left

absolutely no room for doubt: '... [the *Large Glass*] is the only thing that interested me ...'⁸

If we take these statements seriously, as I believe we should, the artist's other works must be seen in another light. The technical points which they raise appear in a visual and literary context (as in the notes to the *Large Glass*) which they seemed not to possess earlier. Apparently chance or 'anti-artistic' objects and gestures reveal a more precise significance. This has to be understood in two ways, since Duchamp's minor productions and ready-mades clarify some of the most intricate problems of the *Large Glass*. His activity can be described as a 'solar system' with a brilliant star (the great work on glass) and a series of planets (the other contemporary works) revolving around it, as if they derived the light from it which would make its interpretation easier. Strange and powerful gravitational forces govern the circular movements and interrelation of this universe of gestures and 'works' that is so typical of Duchamp.

It seems logical to me, nevertheless, that, imitating astronomers, we should first examine the planets (ready-mades) before facing the peculiarities of the 'solar star' (the *Large Glass*). But I insist: the narrative demands of describing one thing after another should not lead us to imagine that what is analysed first explains *chronologically* what is studied subsequently. The purpose of this review is to describe the main ingredients of a system or, if you prefer, of a mechanism whose pieces, although they are independent, reveal their true worth only when they are seen functioning in the context of the global machine.

THE MEANING OF THE READY-MADES

The Duchamp invention which made the most original contribution to the development of contemporary art was the ready-made. Much has been written in an attempt to explain the *raison d'être* of such works, but their essential meaning can be expressed in two words: a ready-made is something 'already made', or previously produced. The artist does not create, in the traditional sense of the word, but chooses from among the objects of the industrial world or (to a lesser degree) the world of nature. Duchamp spoke about these works on numerous occasions, pointing to aspects which seem to us to be in keeping with the philosophy of Ortega y Gasset, such as the dehumanization of the work of art⁹ or the idea of the 'non-artistic', in the sense of things to which 'none of the terms acceptable in the world of art' can be applied.¹⁰ Practically all analysts

have seized upon Duchamp's affirmation of the absence of taste, the aesthetic neutrality which must have governed the choice of ready-mades:

... it is necessary to obtain things with such indifference that they do not provoke any aesthetic emotional reaction. The choice of the ready-mades is based on visual indifference, at the same time as a total absence of good or bad taste.¹¹

But the matter is more complicated than simple statements might lead us to believe, since, in assessing the ready-mades, the following factors at least have to be taken into account:

1. It is neither possible nor desirable to reduce everything to a common set of rules. To distinguish between the 'corrected' ready-mades and those which have not been altered helps less than it might seem to, since a certain modification or displacement of the original material is inherent in invention; the positioning of a new title, in any case, always changes the conceptual universe to which 'what has been discovered' is bound to return (see Table 1).

Table 1: Classification of the ready-mades according to their 'degree of rectification' and the 'complexity of the assemblage'.

DEGREE OF RECTIFICATION	3	<ul style="list-style-type: none"> – Apolinère Enameled. – Air de Paris. – L.H.O.O.Q. – Belle Haleine, eau de voilette 		<ul style="list-style-type: none"> – Trois stoppages étalon. – Sculpture de voyage.
	2	<ul style="list-style-type: none"> – Pharmacie. 	<ul style="list-style-type: none"> – Bicycle Wheel. 	<ul style="list-style-type: none"> – A bruit secret.
	1	<ul style="list-style-type: none"> – Bottle Rack. – In Advance of the Broken Arm. – Peine. – Pliant ... de voyage. – Trébuchet. – Porte-chapeau. – Fountain. 		<ul style="list-style-type: none"> – Why Not Sneeze Rose Sélavy?
		1	2	3
COMPLEXITY OF THE ASSEMBLAGE				

2. The majority of the ready-mades do have a theme, a kind of plot which can be advanced in a more or less literary manner, and I venture to say that this was quite important for Duchamp.¹² This does not mean,

however, that such a 'meaning' has been preserved as unalterable, since some ready-mades subtly altered their meaning by fitting in with the changes in the cultural context and the very evolution of the author's thought processes. I am not speaking here about the inevitable transformations of meaning that occur afterwards, but of how some ready-mades have a meaning which evolved over time. These works can and must be exhumed, temporal layer by temporal layer, just as in an archaeological excavation.

3. Many ready-mades are utensils, simple machines, with a habitually paradoxical function, suitable for use: the bicycle wheel can be manipulated; the normal thing to do in front of *Fountain* would be to urinate (I am not speaking of the unforeseen consequences of this action); in order to hear the 'secret noise', we have to shake the ball of string trapped by the four screws; the 'comb' can be used as such, etc. Other ready-mades, on the other hand, appear to be things to read or look at (*L.H.O.O.Q.*, *Apolinère Enameled . . .*). This distinction (machines to manipulate and surfaces to look at) seems more pertinent to me and closer to the artist's own rules than the distinctions commonly found in Duchamp's bibliography (see Table 2).

READY-MADES FOR LOOKING AT. (Hypothetical action on the part of the observer is subsequent to and transcends the material qualities of the work.)	<ul style="list-style-type: none"> – Pharmacie. – Apolinère Enameled. – Air de Paris. – L.H.O.O.Q. – Why Not Sneeze Rose Sélavy?
READY-MADES FOR WHICH MANIPULATION IS RECOMMENDED. (The observer can use them if he wishes to, but also can imagine the effects of the action by looking at them carefully.)	<ul style="list-style-type: none"> – Trois stoppages étalon. – Bottle Rack. – In Advance of the Broken Arm. – Peine. – Pliant . . . de voyage. – Trébuchet. – Porte-chapeau. – Fountain. – Belle Haleine, eau de voilette.
READY-MADES FOR WHICH MANIPULATION IS OBLIGATORY. (The observer-actor must manipulate or mount the object so that the latter might have an effective 'artistic' function.)	<ul style="list-style-type: none"> – Bicycle Wheel. – A bruit secret. – Sculpture de voyage. – Ready-made malheureux.

Table 2: Degree of necessity for manipulation in ready-mades.

4. These works appear in a context which is much richer and contains greater nuances when the thematic and technical interconnections which unite all of Duchamp's work are examined. The different ready-

mades appear as episodes or separate experiments connected to a global proposition or intention. Duchamp included some notes about ready-mades in the *Green Box*, a fact which proves the connection with the *Large Glass*.¹³ But there does not appear to be a universal law here either: Duchamp's system is very flexible, and although in the majority of cases it is possible to see the cohesion between 'minor' works, or between these and *The Bride Stripped Bare by Her Bachelors, Even*, there are also other works which are difficult to associate with the overall thematic movement.

5. Many ready-mades had an intentional, aesthetic quality as their origin and were not mere anti-artistic gestures, as was frequently thought during the 1950s and '60s. It is also necessary here to distinguish between examples. In any case, it seems essential to elucidate in each particular case what is the exact nature of the aesthetic meaning and what is its likely evolution.

6. The ready-mades have a curious relationship with some literary experiments. Roussel's poetic mechanism consisted, according to Foucault, of presenting 'a series of identical words which say different things',¹⁴ which is very similar to the principle governing Duchamp's invention: the object, taken out of its context, is bound to mean several things at the same time. It is also interesting to point out the affinity with the poems of Apollinaire contained in *Alcools*, which were bitterly criticized in the following terms by Georges Duhamel: 'Nothing is more reminiscent of a junk shop than this collection of verse . . . a multitude of disorganized objects, some of which are of value, but none of which is produced by the trader himself.' This work by Apollinaire and the corresponding criticism were published in the same year that Duchamp put together his first ready-made.¹⁵

7. Despite all of the differences and nuances which we may wish to establish, there is a common structure in the ready-mades conceived by Duchamp between 1913 and 1921. We could describe them by saying that a product which had already been produced was selected by the artist with the ambiguous aim of emphasizing its high aesthetic value, unknown until then, and also of discrediting the system consecrated as 'fine art'. These are almost visual jokes. This operation carried with it the eventual recognition of anthropomorphic connotations and other values in relation to speculations of n-dimensional geometry. A more or less explicit erotic meaning and an almost universal connection with the *Large Glass* also define the characteristics of these products (see Table 3 at the end of this chapter).



7. The first ready-made (1913; Philadelphia Museum of Art) is, in fact, a combination of the front wheel of a bicycle and a stool. The fork is painted black and the stool white. The simultaneous spinning of the wheel and the fork produces a sphere.

THE BICYCLE WHEEL

8, 9. The stools and perambulator reproduced here originated in catalogues for technical-drawing instruments (Lietz and Stanley, respectively); note the similarity between the second stool and that used by Duchamp. The idea of the first ready-made may have arisen without abandoning the theme of 'precision painting' (the legend of the bicycle wheel on a kitchen stool would have been typical of the Surrealists' final set of rules).

Bicycle Wheel, the first of the ready-mades, was constructed in Neuilly in 1913, and new versions of it were produced in 1916 and 1951 (both in New York; other replicas from the early 1970s were also authorized by Duchamp (illus. 7, 26). The upper part is formed by the fork and front wheel of a bicycle, without the rim; it is useful to bear in mind here that there are two possible simultaneous movements: that of the wheel around its own axis, and that of the fork spinning in the hole in the stool. This last element is a sort of holder or pedestal on which the modest symbol of the machine era is raised 'in triumph', as if it were a private monument to the marvellous works of industrial civilization. Let us recall what Duchamp had said to Brancusi concerning the perfection of an aeroplane propeller some months earlier at the Salon de la Locomotion Aérienne. Is not a bicycle wheel another giratory object of great beauty and economy of design? It therefore seems very probable to me that this work was originally an attempt to show the aesthetic qualities of an object 'mass-produced' by procedures peculiar to industry.

There was no 'neutrality' at all in this choice and even less in its very deliberate construction. The result for Duchamp was something beautiful, lovable and inspirational. As he told Arturo Schwarz,

... to watch this wheel revolving is very relaxing, very comforting, a kind of opening of avenues to other things remote from the material, everyday world. I liked the idea of having a bicycle wheel in my studio. I enjoyed it in the same way that I enjoy watching the flames in the hearth.¹⁶

Although stools and bicycles were and are very common objects, it

DRAFTSMEN'S STOOLS



doesn't take much imagination to see how these ready-mades can be sources of inspiration. I do not believe that this is a kitchen stool, as has often been said. It is more likely to be a high stool such as those found in draughtsmen's offices;¹⁷ this ties in more closely with Duchamp's obsession-of-the-moment ('precision painting') than with the taste for heterogeneous juxtaposition which later characterized Surrealism (think of the umbrella and the sewing machine on an operating table; illus. 8, 9). As for the other element, we should not forget that it is almost impossible to see anywhere (in repair shops or sales catalogues) the front wheel of a bicycle, together with its fork, separated from the rest of the machine. Monocycles in circuses are somewhat similar, but they have a saddle and pedals. It is not beyond the bounds of possibility that Duchamp was thinking of pedometers, apparatuses for measuring distances used by people involved in technical drawing or topography. On one of these illustrated in the catalogue of W. F. Stanley and Co., it appears that the handlebars could easily be removed from the rest of the bicycle (fork and wheel with wire spokes), so that the mechanism looks very similar to the one used in the ready-made (illus. 9).¹⁸ The man who tried to create 'precision painting' in 1913 and who immersed himself in a study of perspective and other complex geometric themes had no option but to take an interest in products advertised in this type of catalogue. It is no more than a single step from the pedometer to the bicycle wheel and fork, and it seems quite feasible that Duchamp had already taken that step when he came into contact with utensils peculiar to industrial design.

We must add to everything that has already been said the fact that the fine wire spokes are like lines which disappear from view when circular motion begins. This is something of an inversion of the method followed by Jules Etienne Marey: if the latter froze explosive reality on his photographic plates, reducing it to discontinuous lines, *Bicycle Wheel* allows us to progress from the geometric representation (the lines/spokes in a static position) to its dissolution into genuine movement. We know how much Duchamp was influenced by this type of 'scientific photograph' and to what extent he had such photographs in mind when he thought of *Nude Descending a Staircase*.¹⁹ In about 1912-13, he avidly read Gaston de Pawlowsky's novel *Voyage au pays de la quatrième dimension* at the same time as he was delving into complex mathematical speculations. Clair, Henderson, Adcock and others have brought to our attention the influence Duchamp's studies into n-dimensional geometry had on him: it is certain that he knew several works by Flammarion, Poincaré, Jouffret and Bragdon.²⁰ But I do not believe that his knowledge of all this

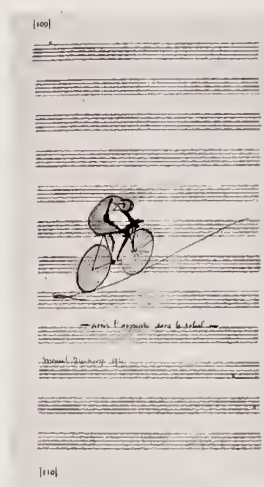
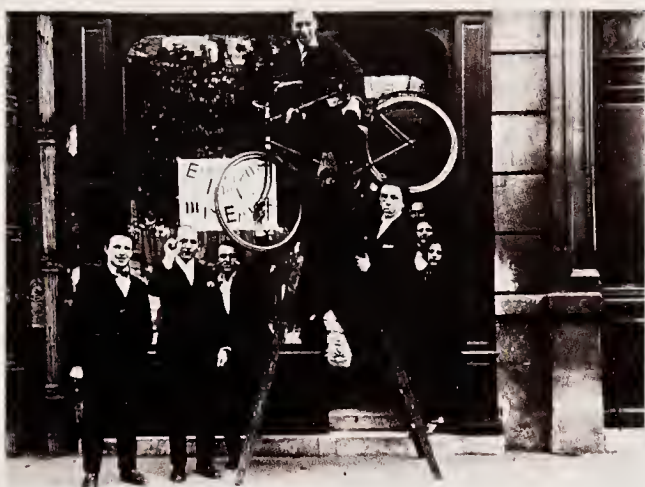
10. Jean Crotti created his *Portrait de Marcel Duchamp sur mesure* in 1915. It is a sculpture of which photographs and this pencil sketch (Museum of Modern Art, New York) have been preserved; the model's face appears to emerge from a wheel.

11. The durability of bicycles according to the 1913 catalogue from the Manufacture Française d'Armes et Cycles de Saint Etienne.



was anything more than superficial. Given the sexual theme of the *Large Glass*, it seems logical to suppose that Duchamp used the fourth dimension as a kind of metaphor for orgasm; certain pseudo-scientific digressions would have allowed him to represent, using an abstract and 'dehumanized' code, the great *sensitive* themes inherited from the Romantic tradition. *Bicycle Wheel* produces a sphere when its rotary movement is combined with the revolving fork resting on the stool (illus. 7), all of which preserves the great similarity both with Jouffret's diagrams illustrating his discussion about Riemann's lines²¹ and with Marey's photographs showing the sphere produced when half a ring is rotated.²²

But this is not all. When Schwarz mentioned to Duchamp the possible similarity between *Bicycle Wheel* and the oil painting entitled *Coffee Mill*, the latter agreed and immediately pointed out the connection between the *Chocolate Grinder* and the latest *Rotoreliefs*. We already know from the notes to the *Large Glass* that '... the bachelor grinds his chocolate for himself', so that the rotary movement of the wheel (initiated, let's remember, by the hand of the viewer/user) has a tacitly masturbatory meaning. The upper part of this work should be considered almost as a subliminal self-portrait of the artist in so far as it is the 'bachelor'; this is how his friend and future brother-in-law Jean Crotti seems to have understood it when he drew *Portrait de Marcel Duchamp sur mesure* (1915; illus. 10); in one of the preliminary drawings (or is it from a later date?), Marcel's face comes



out of a wheel placed down below. The wire used by Crotti in the sculpture (anticipating by some considerable time the similar works of Calder) appears to be another subtle allusion to the material used to make spokes for the wheel.²³ Let us not forget that the bicycle and the act of pedalling have traditionally been associated with masculinity. In the catalogue *Armes et cycles de Saint-Etienne*, there are engravings illustrating the durability of bicycles which seem to parody some illustrations by de Sade (illus. 11), and it would not be surprising if there were a burlesque echo of all this in the famous photo (with ladder and bicycle) produced by the Paris Dadaists in 1921 (illus. 12). There is also the Duchamp drawing *Avoir l'apprenti dans le soleil* (illus. 13), included in the *Box of 1914* and surely an evocation of the *Spéculations* by Jarry: 'About Passion considered as an uphill run'.²⁴

There is absolutely no doubt that the essential problem of mechanics is resolved admirably by the bicycle: 'transformation of alternating movement into continuous circular movement'.²⁵ We might almost say the same thing if we were talking about love. And now that we have arrived at this point, it might be useful to observe that the axle of the fork penetrates the hole in the kitchen stool, and that this also forms part of the work. While the top part moves, the support remains static. In all of the surviving versions, the top part (the fork and, at times, the wheel also) is painted black whereas the stool is completely white. Opposite colours to indicate the opposite sexes? Does *Bicycle Wheel* not resemble another copulating machine?

The complexity of this first ready-made (Duchamp had still not thought of a name for it) shows that we must not naïvely accept the simple definition of the *Dictionnaire abrégé du surréalisme*: 'Ready-made: an everyday object elevated to the more dignified level of an artistic object at the mere whim of the artist'.²⁶ Duchamp recognized that there was

12. The Paris Dadaists amuse themselves with a ladder and bicycle. From left to right: Hilsun, Péret, Charchoune, Soupault (suspended) and Breton in a 1921 photo.

13. *Avoir l'apprenti dans le soleil*, a drawing by Duchamp on a musical score, included in the *Box of 1914*.



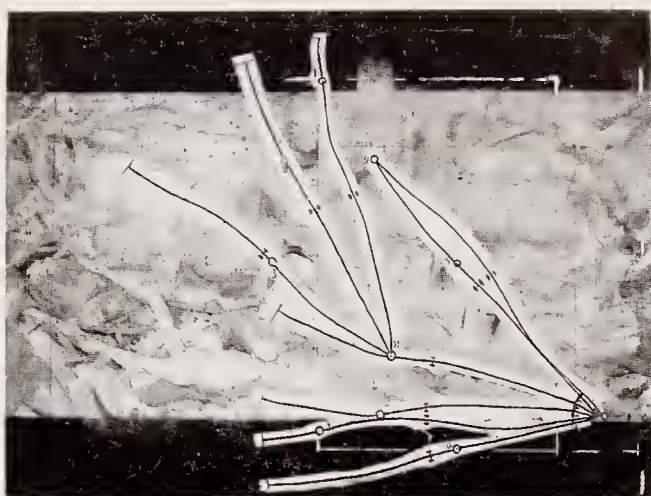
14. 'Tinned chance': *Trois stoppages étalon* (1913–14; the box of the original ready-made [Museum of Modern Art, New York] may have been made c. 1936). This photo is of one of the replicas authorized in the 1960s.

something attractive about 'industrial beauty' and made use of manufactured objects in order to produce a gadget of speculative geometry that would go way beyond the limited artistic objectives of Cubism.²⁷ And all this was while he was suggesting the same things in the *Large Glass*: the possibility or otherwise of love, contact between the sexes, masturbation etc.

TINNED CHANCE

Much more complex was the production of *Trois stoppages étalon* (1913–14; illus. 14): the artist dropped three threads, each a metre long, on to the same number of cloths coloured Prussian blue; the threads were then stuck to the respective surfaces without any alteration being made to the curves they chanced to form as they landed. This is why he was able to add in a note to the *Box of 1914* that these patterns 'are the diminished metre'.²⁸ Duchamp then cut up these pieces of material and stuck them to glass plates, which were encased, in turn, in a carefully made wooden box. A few wooden rulers were added to the work which had been cut out following the curves formed by the threads; they are said to resemble patterns for transferring the 'units of measurement' to the capillary tubes of the *Large Glass*,²⁹ and it is almost certain that they were used to trace the lines of the picture *Trois stoppages étalon* (painted in Paris at the beginning of 1914; illus. 15) as well as those of *Tu m'* (1918; illus. 53, 54).³⁰

It is obvious that this ready-made is connected with *The Bride Stripped Bare by Her Bachelors, Even*. Glass used as a support for randomly chosen objects is present in both works. In addition to the use of the 'patterns' for the tubes which are connected to the malic moulds, one should also



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mention the technique of the glued threads, used as well (although this time with lead) in the *Large Glass*.³¹ I would add also that *Trois stoppages étalon* contains a subtle commentary on the inexorability of the laws of geometry and on the cold exactitude of 'precision painting': the new pattern demands that the rulers should not trace straight lines but curves, which, being in an immutable mould, are no longer random. For this reason, the whole ensemble was inspired, I believe, by the cases in which the rulers and patterns used in technical drawing are kept. Some images from the catalogue of W. F. Stanley and Lietz speak for themselves (illus. 16).³² These iconographic sources would be, in any case, more in keeping with Duchamp's preoccupations and universe than the croquet boxes which are sometimes mentioned.³³ The manufacturers of technical-drawing equipment also used to offer flexible curved rulers, shown without doubt in their catalogues, with shapes which were very similar to those settled on by Duchamp for his three wooden rulers (illus. 16, 17).³⁴ In support of my hypothesis, I should like to point out that Duchamp's box does not resemble the protective tubes for the standard metre as a unit of longitudinal measurement.³⁵ *Trois stoppages étalon* is a genuine case for artists' rulers which was used as such by Duchamp to draw the guide

15. The lines of the 1914 oil painting *Trois stoppages étalon* (Museum of Modern Art, New York) would have been drawn with the curved rulers of *Trois stoppages étalon*.

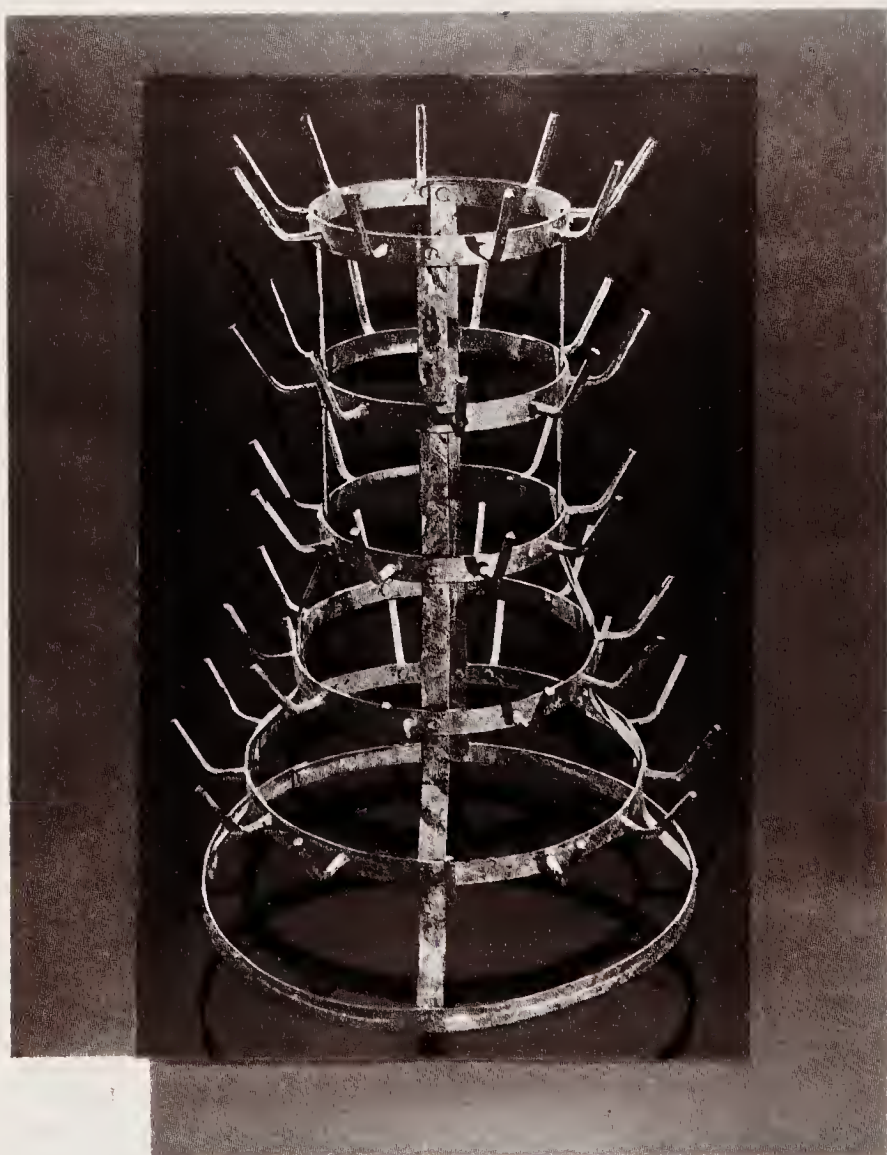
16, 17. The idea of producing a box of randomly chosen rulers with *Trois stoppages étalon* may have come from the models offered by firms specializing in technical-drawing equipment: the box of scales is taken from the Stanley catalogue and the box of engineers' curves from the Lietz catalogue.

lines for *Tu m'*³⁶ and a substantial part of the 'bachelor machine' in the *Large Glass*. We will return to this theme later on.

THE BOTTLE RACK AND THE SNOW SHOVEL

The first of the 'unmodified' ready-mades was *Bottle Rack*, bought by Marcel at a bazaar in the Paris Town Hall shortly before the outbreak of the First World War (illus. 18). Its sexual connotations are obvious, with its erect spikes ready to be inserted into the empty bottles. It has also been pointed out that there is a similarity between the steel body of the object and the metallic bands around the malic moulds,³⁷ a definition of which Duchamp was working on at the time. But I do not think that we should see here an inexorable representation of the lack of communication between the sexes (Schwarz says that the bottle holder never received the bottles and thus symbolized Marcel's bachelor state),³⁸ since the viewer's logical and 'creative' act is to hang the wet bottles up to dry and thus to intervene actively so that the object might perform its function. One might say that finishing a work of art is like making love, and vice versa. Given the material of the bottles, it is another 'delay on glass' (although everything depends on the rapidity with which we may decide to put things in their place). In an interesting photographic portrait of Marcel, belonging to his sister Suzanne, we see the young artist, smiling, in front of a tree with huge nails knocked into its trunk; several bottles have been placed on these nails to dry (illus. 18, 18a).³⁹ We may take this to be a variant of the ready-made under discussion and an additional proof that a utensil may have a logical use which coincides with what the original manufacturer had in mind (although the meaning may be different).

These examples are not sufficient for us to appreciate that the ready-mades function beneath layers of meanings: to the primary meaning, defined by the object's normal function, are added technical and scientific connotations; all this is then aimed at a kind of sexual code which is in some way 'hooked' into the iconography of the *Large Glass*. Another example of this is *In Advance of the Broken Arm*, the first ready-made which Duchamp thought up after his arrival in New York in 1915. It is nothing more than a simple utensil for clearing snow which must have surprised him since such shovels are unknown in Paris (illus. 19). As in the case of the bicycle wheel, we have to consider the aesthetic impact caused by the manufactured object: 'Speaking as an artist,' said Duchamp during a magazine interview in 1916, 'I consider the shovel the most beautiful



18, 18a. *Bottle Rack* (1914) from a photo by Man Ray reproduced in the *Boîte en valise*. The ideal observer for this ready-made must put the bottles out to dry; this is suggested by this anonymous photo of Duchamp in front of the other 'naturalist' version of the bottle rack.

thing I have ever seen.⁴⁰ But it is also an obvious phallic symbol; the affair of the 'broken arm' was interpreted psychoanalytically, connecting it with the rupture of the 'matrimonial vow' on the part of Suzanne, Marcel's sister and future wife of Jean Crotti.⁴¹ I should like to broach this line of investigation by pointing to the relationship between what a man throws away with a shovel using a spiralling movement (white snow) and the 'splash' in the *Large Glass*, that distilled finale of the bachelors' operations that descends 'on a helter-skelter' from the last of the sieves, resembling white snow, before being transmitted in some manner into the sphere of the bride. This interpretation is not intended to deny the importance



19, 20. The snow shovel (retitled *In Advance of the Broken Arm* in 1915) was considered by Duchamp to be 'the most beautiful object that I have ever seen'. It is certainly not very similar to the ordinary European shovel, as can be seen from a comparison with those shown in the catalogue produced by Newbold & Co. (1891).

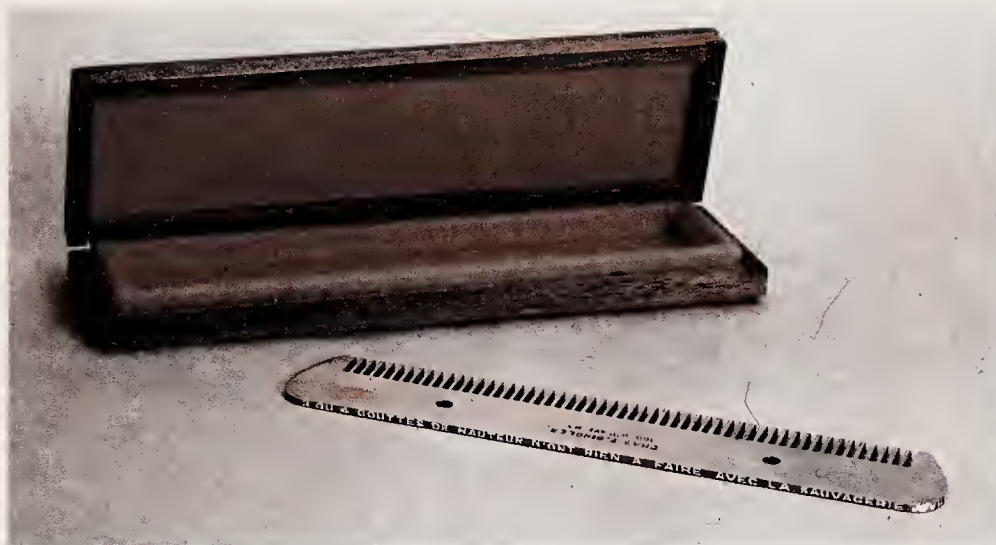
of Adcock's observations in respect of the creation, with the giratory movement of the user, from n -dimensional space, since we have already said that this aspect of Duchamp's thinking must be considered as a conceptual support for the *meta-physical representation* of love.

THE COMB AND THINGS ABOUT HAIR

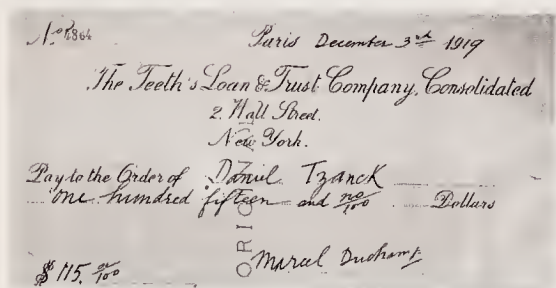
One of the clearest examples of this is *Peine*, and Duchamp chose one with steel teeth, of the type used for grooming dogs. He then dated the event with absolute precision as 17 February 1916, at 11 o'clock in the morning. He also added an enigmatic inscription which is difficult, if not impossible, to understand: *Trois ou quatre gouttes de hauteur n'ont rien a voir avec la sauvagerie* (illus. 21). Speaking with Arturo Schwarz, Duchamp said that nobody is ever interested in how many teeth a comb has since they are more interested in their hair than in the object they are using. This made him 'think of a classification of combs according to their number of teeth, which is very entertaining, or at least is an irony of affirmation'. The geometric dimension which the artist detected in the theme is very interesting. When dealing with the connections between the comb, the rattle and the coffee grinder, he referred to the movement of the comb pulled along an axis (the hand of the user) and said that the teeth

would describe a series of circles which in fact would be nothing other than a comb with different curves. It would no longer be a flat comb but rather a curved comb . . . There is a possibility, as I have said, of generating space starting from a flat surface.⁴²

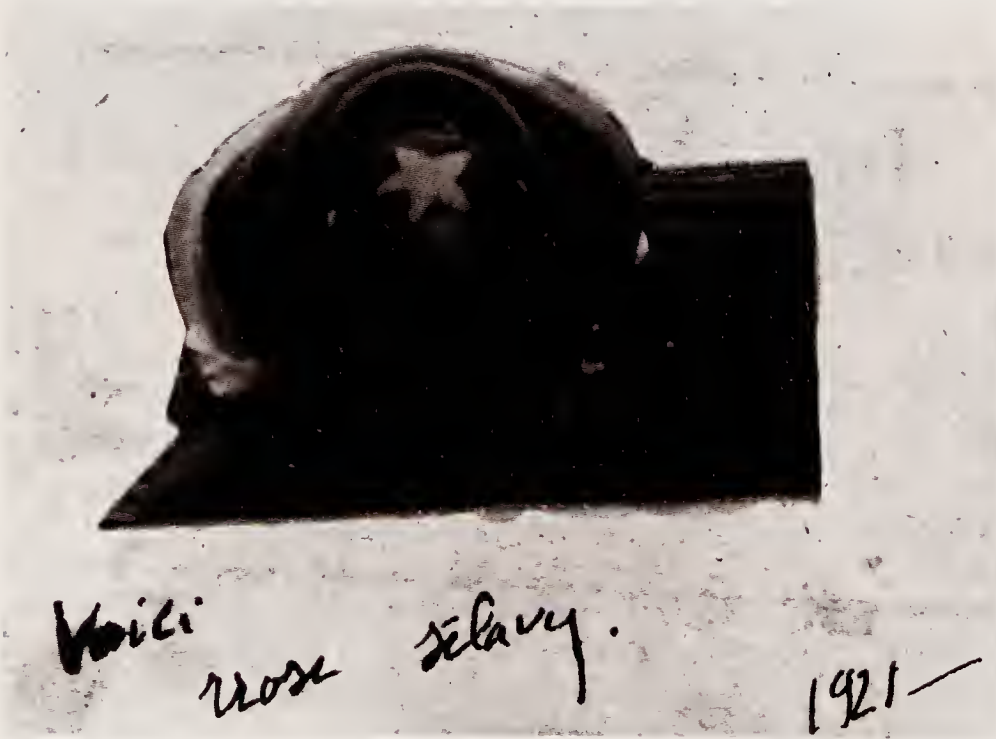
A simple utensil of everyday use can be converted, as we have seen, into a theoretical machine, a simple mechanism for escaping into the third (or fourth) dimension. The possible erotic component of this work has been emphasized by, among others, Peter Read, who, taking the *Tzanck Cheque* (illus. 22) as a guideline, connected all of Duchamp's works which have anything to do with teeth or hair. His starting-point was Freud's statement in *The Interpretation of Dreams*: 'In order to represent castration in a symbolic manner the dream makes use of baldness, having one's hair cut, losing one's teeth and decapitation.' This leads us to the *Tonsure* in the shape of a star which Georges de Zayas created on Duchamp's cranium in 1921 (illus. 23).⁴³ As *Etoile* ('star' in French) is equivalent to *toile* (a piece of material in *franglais*, the hybrid language with which Duchamp played),⁴⁴ it is clear that our artist was telling



21. This metallic comb (for dogs) was chosen by Duchamp on 17 February 1916 at 11 o'clock in the morning; he used its image for the title page of *transition*, no. 26 (1937). Reproduced here is one of the replicas authorized in the 1960s.



22. In order to pay his dentist, Dr Tzanck, Duchamp carefully drew a cheque which the latter was delighted to accept: *Tzanck Cheque* (1919; Philadelphia Museum of Art).



23. *Tonsure*, which Georges de Zayas produced on Duchamp's cranium (1921; Philadelphia Museum of Art), indicates that the place for painting is in the brain (*Etoile* = *toile*, i.e., the star points at the head/material). This photo and inscription ('here is love is life') are also suggestive also of the cerebral nature of eroticism.



us where the place for painting was: in the brain. As in the Italian Renaissance, true art aspired to be a 'thing of the mind'.⁴⁵

And now let us return to the comb without forgetting Freud's little comment. At an unconscious level, when a man combs his hair he caresses himself sexually (and demonstrates that there has been no castration). Perhaps we have taken a circuitous route to return to the *Large Glass*, with its constant references to masturbation, but I believe that this could be typical of Duchamp. Did he not say of himself when he was explaining his *Peine* that he had always been seduced by the *farfetched* (the improbable, leg-pulling)?⁴⁶

24. *Apolinère Enameled* (1916-17; Philadelphia Museum of Art), or the embalming (enamelling) of the 'era of Apollinaire', in an altered commercial advertisement.

APOLINERE ENAMELED (1916-17)

Something of all this can be detected in the lithograph on a painted zinc plate which illustrated a well-known brand of industrial paint, Ripolin. Duchamp converted it, after modifying it slightly, into a homage to Guillaume Apollinaire (illus. 24): the ending *-ère*, consciously incorrect,

was an attempt to share the belief (common among the avant-garde) that the entire period would one day be described as 'the era of Apollinaire'.⁴⁷ Some of the impersonal labelling is very interesting, with the 'from' which suggests provenance rather than authorship on the part of Duchamp, although (subtle irony) he took the trouble to use a pencil to carefully draw the reflection of the little girl's hair in the mirror. The Dadaists' interest in industrial enamel is explained fully in the brief introductory text to the 1926 Picabia sale catalogue, in which Rose Sélavy (Duchamp) wrote about his friend's work: '1923. His desire to be inventive causes him to use Ripolin in place of the acclaimed paints in tubes, which very soon acquire, in his opinion, the patina of posterity.'⁴⁸ Le Corbusier, some time later, even enthusiastically proposed 'Ripolin's law', according to which any citizen could purify his environment by covering it with a uniform and purifying coat of industrial white paint.⁴⁹

But there is something to which insufficient attention has been paid: the bas-relief of the bed projects diminutive shadows on to the rest of the picture. It could be said that this object has no contact with the carpet, but hovers a few centimetres above it. Is there not a surprising similarity between this 'floating bed' and the glider in the *Large Glass*? The position in perspective of a right-angled structure, empty and weightless, is almost identical in both cases. The mirror, to the right, corresponds to the 'ophthalmic witnesses' and the reflective zone in the great work on glass. Also present is a 'virgin' (the child painter): with her paintbrush/lock of hair she is painting (caressing) the bedpost, which has such a phallic appearance that the whole structure rises up, defying the laws of gravity. One might also say that cold, industrial painting is a metaphor for love and the tremendous physical effects which it produces. This might well have been the best way Duchamp could find to glorify the man who had written splendid erotic poetry, pornographic novels and filthy jokes known only to his closest friends. Duchamp regretted that Apollinaire never had the chance to see this ready-made, as if he was certain that nobody except the poet would be able to comprehend all of its insinuations.⁵⁰ It is not impossible that there existed another, superimposed burlesque intention which could be associated with a chauvinistic and conservative bias which the artist's old friend adopted at the outbreak of the First World War: the poet (and the entire militant, avant-garde 'era') was 'enamelled' – that is to say, mummified – as if everything he stood for was already dead.



25. *Pliant ... de voyage* (1916): the empty cover from an Underwood typewriter conceived to look like a woman's skirt.



26. *Trebuchet* (1917) in a photograph taken in Duchamp's studio and later reproduced in *Boîte en valise* (*Bicycle Wheel* can also be seen here).

PLIANT ... DE VOYAGE AND TREBUCHET

Pliant de voyage (1916), from an earlier period, is the soft cover of an old typewriter (illus. 25). It was always exhibited 'inflated', with the trademark clearly visible (Underwood), which makes us think, in fact, that 'there is wood' there. Duchamp associated this with a woman's skirt and thought it only logical that an observer would want to bend over to see what was underneath.⁵¹ Ulf Linde remarked pointedly that in the *Boîte en valise* a miniaturized version of this object is found close to the centre of *The Bride Stripped Bare ...*,⁵² on the horizontal line, which is where the bride's dress falls. Above (we will speak about this later) is the 'suspended' phial containing Paris air, and below is the urinal, suggesting to which parts of the *Large Glass* we should attribute the respective ready-mades. *Pliant* is, however, a 'feminine' ready-made, or rather the hollow receptacle of absent femininity (escaped, perhaps, to the fourth dimension of its sexual expansion). To what extent might this ready-made be considered a 'female' version of the hollow malic moulds of the bachelor machine?

These were the culminating years of the work on the *Large Glass*, and Duchamp's speculations and doubts about this work are more present than ever in his other creations. *Trebuchet* (1917) is a perch nailed to the ground, a veritable device for tripping people up: in a photograph of the artist's New York studio (33 West 67 Street) taken about 1917-18, we see it placed next to the bicycle wheel (illus. 26). One could say that whoever trips over the perch will inevitably fall on to the other ready-made. This 'trap' unleashes tacitly sexual motion. Nothing could hang from such a perch, and this accentuates the masculine condition of the object (remember that the woman in the *Large Glass* is 'the female pendant').

THE 'SUSPENDED' READY-MADES

Just the opposite could be said about *Porte-chapeau* (1917; illus. 27), *Sculpture de voyage* (1918; illus. 28), *Ready-made malheureux* (1919; illus. 29) and the phial containing *Air de Paris* (1919; illus. 30); these ready-mades, suspended in the air, point for different reasons to the feminine universe. In the first three, there is the underlying idea of the hunter spider, or the praying mantis devouring the male. The similarity between a hatstand and a spider hanging from its thread is frankly surprising. We should not scorn these similarities 'detected' between objects and animate beings, since Duchamp sanctioned them formally when he formulated (in a note written with a thick red pencil) the best unconscious and paradoxical definition of his ready-mades: 'du dos de la cuiller au cul de la douairière'.⁵³ In a letter to Jean Crotti dated 8 July 1918, he described his *Sculpture de voyage* as 'a kind of spider's web made up from all the colours',⁵⁴ and in the famous photograph with the shadows cast by this and other works by him, the 'spider' of *Porte-chapeau* appears to walk along the threads of *Sculpture de voyage* (illus. 31); the form of a praying mantis also insinuates itself into the lower part of the picture.⁵⁵ It is also known that Duchamp mentioned the spider's web several times in his notes in relation to the *infrafine* and other aspects of his work.⁵⁶ H.-P. Roché, in his memoirs about his friend, wrote that *Sculpture de voyage* had stood in a corner of the study, 'dismembered like a spider's web'.⁵⁷ Finally, I should like to refer to a photograph of Duchamp in his youth, standing on a terrace or balcony, attached to (or almost hanging from) a rope or



27. *Porte-chapeau* (1917) is a ready-made reminiscent of a spider (feminine) hanging in mid-air.

28. *Sculpture de voyage* (1918) lacked a fixed form and so was made up of multi-coloured strips of rubber (taken from bathing caps) that could be hooked up in many different places. This image comes from the *Boîte en valise*.



29. Instructions from Duchamp to his sister Suzanne as a wedding present: hang a geometry textbook outside a window. This was the *Ready-made malheureux* (1919).



30. *Air de Paris* (1919) is an empty, extremely fragile phial sealed in the capital of France.

31. *Shadows of Ready-mades* (photo from c. 1918) suggests a 'figurative' interpretation for some of these creations: spiders, praying mantises, etc.



pole over his head; this picture is 'protected' by a piece of old, semi-transparent film on which an embossed stamp contains the repeated motif of a spider. The photo bears a dedication by K. Dreier to 'Madame Duchamp', and we must consider it to be a ready-made which was witnessed and dedicated to the artist's first wife, Lydie Sarazin-Levassor, who had 'trapped' Marcel, the confirmed bachelor, like a spider (even if only for a short time) ...⁵⁸

Sculpture de voyage was made out of strips of rubber from a few bathing caps (illus. 28). It had no fixed shape and could be hung up in different ways in different places. What we have here is a good example of the contemporary conception of the work of art. The *Ready-made malheureux* had a similar meaning; Duchamp sent the instructions for it through the post from Buenos Aires to his sister Suzanne, as a kind of wedding present (she was marrying his friend the Dadaist painter Jean Crotti): a textbook on

geometry was to be hung out on a balcony and exposed to inclement meteorological conditions (illus. 29). The possibility that pure chance (wind and rain) would make the book spin round and thus create a three-dimensional mathematical space must have been very stimulating for Duchamp. The pages would bend (like diagrams which were 'flat' to start off with), thus evoking non-Euclidean geometry, a theme which was discussed at length in the Puteaux circle.⁵⁹ But this ready-made was 'unfortunate', and such sentimental anthropomorphism, unique in the genre, reinforces the association with the female pendant in the *Large Glass*.

The sealed glass phial containing *Air de Paris* was acquired from a chemist by Duchamp in December 1919 and taken to New York as a gift for his friend Walter C. Arensberg (illus. 30). It is another object to be hung up and with feminine overtones: we have already said that it appeared in the *Boîte en valise* next to the upper part of *The Bride Stripped Bare by Her Bachelors, Even*. The piece's sexual implications can be reinforced by its geometric meaning. Adcock has pointed out that in French the word *air* is used by mathematicians to mean 'area',⁶⁰ so that this could be a private game of a somewhat humorous nature: the phial-breast as a synecdoche and a metaphor for 'all' Paris; the untransferable aroma (sexual) which it contains cannot escape, as it is trapped within a glass container. There is no doubt about the relationship here with certain notes in which Duchamp imagined the possibility of a similar isolation for the feminine figure in the *Large Glass*. None of this prevents us from considering the aesthetic dimension further, since unlike other ready-mades, this one is gratuitous, beautifully useless and extremely fragile.⁶¹

L.H.O.O.Q.

Air and smells (feminine) are close to the temperature of the body, another theme evoked by Duchamp's most famous ready-made: *L.H.O.O.Q.* This work was conceived 'in full Dadaist effervescence' after its creator met Picabia again in Paris in the summer of 1919 and made the acquaintance of Ribemont-Dessaignes, Pierre de Massot, Jacques Rigaud, Aragon, etc.⁶² It is probable, then, that there really *was* a desire to take the myth out of the sublime art of painting, represented by such emblematic pictures as the *Mona Lisa*. Countless books and treatises spoke of the famous smile and enigmatic femininity of Leonardo's work, which makes the sarcasm of drawing a moustache and goatee on a cheap reproduction of it all the more marked (illus. 32). The five capital letters of the title, read



L.H.O.O.Q.

32. *L.H.O.O.Q.* (1919;
Philadelphia Museum of
Art): 'She has a hot bum.'
But who is 'she', if what we
see in the picture is a man?

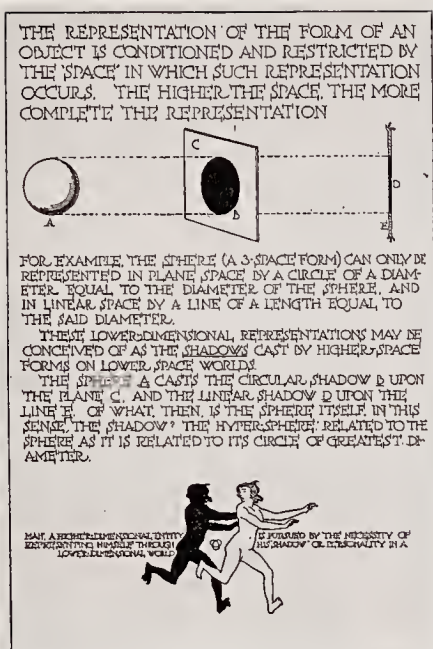


PLATE 12



33. The woman's shadow like a lewd satyr in an illustration from Bragdon's *A Primer of Higher Space* ([1913], pl. 12).

34. An anti-German postcard from 1918, a possible precedent for *L.H.O.O.Q.*

rapidly in French, constitute a sentence which translates into something along the lines of 'She has a hot bum.' But I think that there was another, almost personal, reason why Duchamp was fixated on this work: his friend Apollinaire had been detained some years earlier by the police in connection with the theft of the *Mona Lisa* and a few little statues from the Louvre. The false accusation left its mark on the poet, and he must have noted with bitterness that even Picasso himself, frightened of being expelled from France, testified that he did not know him.⁶³ With this ready-made, Duchamp went back on to the offensive, once again evoking indirectly the late literary pontiff of the avant-garde.

I believe that there is some distance between this work and the Futurist fascination with the manufactured industrial object which already existed in *Fountain* (1917). This is a somewhat different conceptual universe: Steefel was one of the first to detect that the title, in English, is the same as *LOOK*,⁶⁴ so that it could be considered as a tautological commentary on the ocular relationship between the painter and the observer. Here, we are not observing a machine which can be manipulated, but rather a thing to be read or looked at. As a tacitly programmatic discourse on the stupidity of traditional art (and on 'retinal' painting in particular), we would be close to *Apollinère Enamelled* (1916–17). Also, *L.H.O.O.Q.*, for different reasons, hovers in the orbit of the *Large Glass*.

It is important to point out that this ready-made contains an ironic

35, 36. The ready-made *L.H.O.O.Q.* was given mythical status and reinterpreted by the Surrealists. Whereas Magritte, with *Le Viol*, preserved the female sexuality of the figure, Dalí represented himself as 'Avida Dollars' (1954).



representation of both sexes: *she*, in reality, is a *he*. 'The most curious thing about the moustache and goatee', Duchamp said to Herbert Crehan, 'is that, when you look at them, the *Mona Lisa* is converted into a man. It is not a man dressed up as a woman; it is a real man, and this was my discovery although I did not realize it at the time.'⁶⁵ It could be that when he thought of this, he had Jarry, one of his favourite authors, in mind; Jarry had written: 'Although you may be a woman, I can see the shadow of your beard on the wall, like a tree reflected in water, like a lichen on a stone, or better still, like seaweed welded to the shining mother-of-pearl jaw of a pearl oyster.'⁶⁶ Claude Bragdon, an author whom Duchamp knew well in 1919, had a similar reference in one of his sketches, where he showed with considerable humour a feminine figure (a hyperdimensional entity) chased by her own shadow, which looked like a satyr complete with a pointed goatee beard (illus. 33).⁶⁷ All this without forgetting the innumerable popular caricatures, some of which had already converted the famous feminine myth of the Renaissance into a man (illus. 34).⁶⁸

It is tempting to introduce Freud's essay on Leonardo daVinci, with all that it says about the possible homosexuality of the creator of the *Mona Lisa*. If we follow this psychoanalytic line, Salvador Dalí's brief explication, published at the beginning of the 1960s, seems very shrewd to me: any museum is a kind of brothel, with the characteristic profusion of nudity and sensuality. Leonardo's work, on the other hand, represents the ideal



37. The first appearance of Rose Sélavy on the adapted perfume bottle *Belle Haleine*, *eau de voilette* (1921).

mother, and to make her masculine would be the only way to give her flesh and sexual organs.⁶⁹ This is what Duchamp did: this person with an enigmatic smile sits in front of a tremendous landscape of rocks and waterfalls. This could be another 'malic mould' with its two 'ophthalmic witnesses' (the eyes) directed towards the *bride*, whose position is exactly that of the ideal observer. It could be she (that is to say, any woman who looks



38, 39. Smell in popular burlesque eroticism: an illustration by Aubrey Beardsley and a postcard from the early twentieth century.



at the picture) who ‘has a hot bum’ and she who, with her ‘temperature’, could reveal the carnal nature of the figure, idealized until that moment, who is admired in the Louvre. If this hypothesis is correct, the inscription *L.H.O.O.Q.* should not be read as a neutral title which describes what we see (it is a man and not a woman), but as if the words were being said or thought by an individual referring to the figure (feminine) in front of him or her. This frequently happened in cartoon strips and illustrated stories at the beginning of the century. Did Duchamp not start his career producing humorous sketches with dialogues written beneath them?

Here again, a ‘higher space’ would have been generated, so that the relationship of the plane and the vertical between the two parts of the *Large Glass* should here be horizontal and three-dimensional. It is obvious that we, as voyeurs, are implicated in a manner which can hardly be described as neutral: we are, then, confronted by one of the most explicit precedents for the posthumous montage *Etant donnés*.⁷⁰

BELLE HALEINE

The process is very similar, if inverted, in *Belle Haleine, eau de voilette* (1921; illus. 37). The face of the artist dressed as a woman appeared for the first time in the collage which served as a label for this object; but in the same way that the *Mona Lisa* with a moustache and goatee beard is a man, Rose Sélavy is not Marcel but a woman. Duchamp had already signed his window made out of leather in the name of this alter ego several months earlier (*Fresh Widow* [1920]). Now, thanks to a photograph taken by Man Ray, he was shown with a real face; a description of his physical qualities (*belle*) also crept in, and it was meant to possess a specific aroma.

Duchamp took a label off a bottle of Rigaud perfume and replaced the original inscription (*Un air qui embaume*) with the play on words which gives the title of his work. Though *Haleine* means ‘breath’, the phrase calls to mind ‘la belle Hélène’ (beautiful Helen); *voilette* is a linguistic combination of ‘violet’ and ‘velito’ (little veil). Duchamp also added to the original Parisian name-tag ‘New York’. But the most significant transformation was the substitution of ‘RS’ for ‘R’ in ‘Rigaud’, the initials of Rose Sélavy, drawn as if reflected in a mirror. Although this means of transcending the plane in which the object was situated and of involving what was standing in front of it clearly harked back to the structure of *L.H.O.O.Q.*, as we have already seen, we also have other data which confirm the thematic relationship between the two works. On a photograph of this

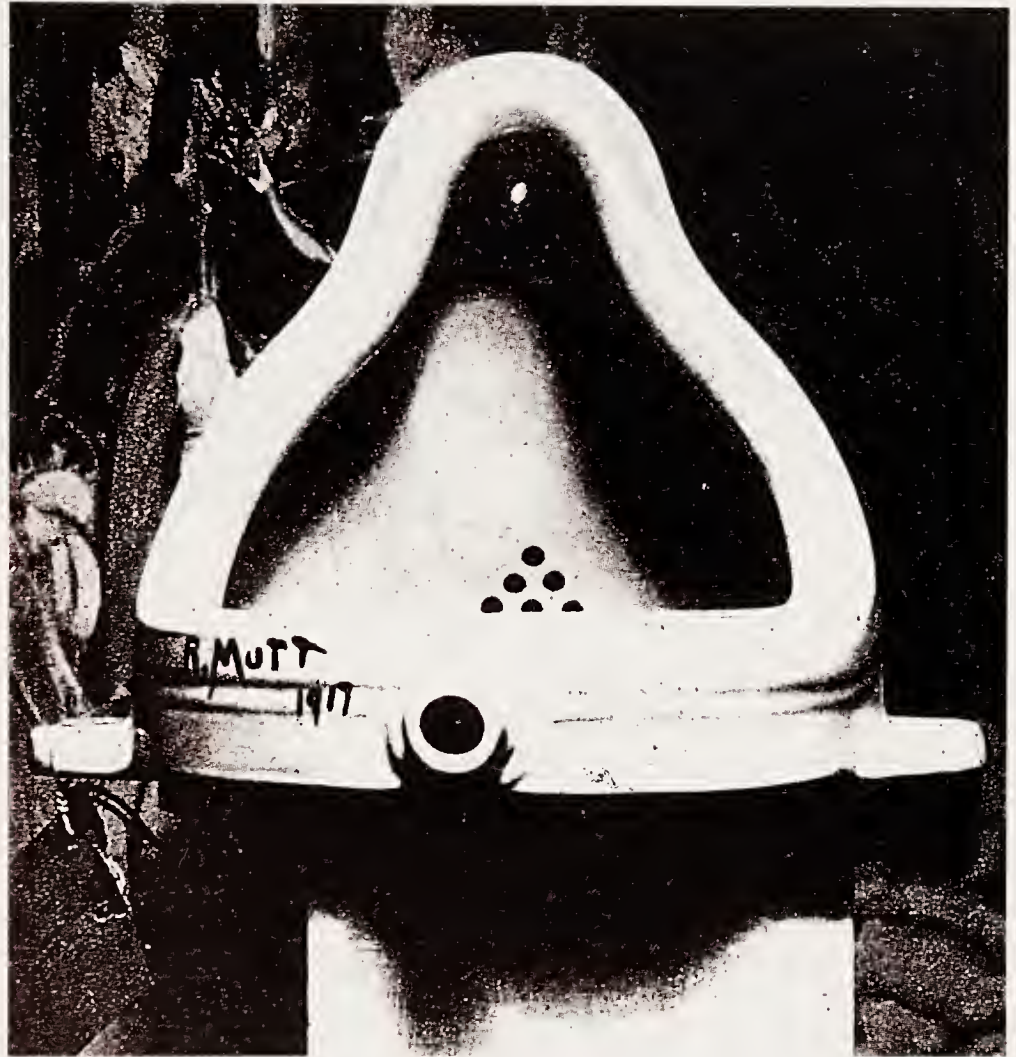
bottle, taken by Man Ray, Duchamp added: 'There is someone who plays the part of a photographer and there is she who exhales from below.'⁷¹ And another sentence, taken from his *Writings*: 'Des bas en soie . . . la chose aussi.'⁷²

The added layering of different meanings, all connected to each other, allows us to absorb the body heat (from a *certain part* of the body), the smell and the touch. It is certain that the ready-mades possess an elevated conceptual charge, but their dominant theme, as we can see, is fundamentally sexual with its roots in the deep universality of primitive instincts. The perfume (of) *Belle Haleine* is trapped in a phial, cannot be seen, and in any case is perceived reflected in the user-observer. The double event and separation between both 'poles', added to the glassy material of the container, confirm that this ready-made belongs to the 'solar system' of the *Large Glass*. But this is not to say that the burlesque aspect should be ignored, since few things have enjoyed as much prestige in popular erotic iconography as breath, smell and temperature (illus. 38, 39). Sexual arousal depends on more than a mere glance, and it is logical that Duchamp, the 'anti-retina' artist, should have laid such emphasis on this theme.

THE FOUNTAIN AFFAIR

I have so far postponed an analysis of *Fountain*, one of the mythical emblems of the avant-garde, because the problems associated with it draw together, to a certain extent, almost all of what we have been saying about the ready-mades. The work (a urinal made of porcelain and signed *R. Mutt*) was presented to the first public exhibition of the Society of Independent Artists, which opened in New York in December 1916 and which was modelled on the Parisian institution of the same name. With no panel or selection committee, the society awarded neither prizes nor distinctions. Anyone who was willing to pay the fee (six dollars) gained the right to exhibit. It is not surprising, then, that on that memorable occasion some twelve hundred artists hung their works along the two miles of panels.⁷³ *Fountain*, however, was not among them: despite the Society's clearly stated rules, the organizers decided not to exhibit it. This decision gave rise to serious internal arguments and the resignation of Duchamp, who was a member of the governing body. It is obvious that the matter had been a provocation, a way of questioning the limits of the newest and most progressive of American art institutions. It is very probable, as Camfield has stated, that Duchamp was thinking of the censure

40. The 'official' photograph of *Fountain* (1917), taken by Alfred Stieglitz and published in *The Blind Man*, no. 2.



motion passed by the Parisian Indépendents in 1912 against his *Nude Descending a Staircase*⁷⁴ and somehow wished to repeat the event.

If this were the case, then we would have to attribute to him a new technique of Dadaist ancestry: scandal, conceived as a kind of collective work with consciously programmed effects. The first skirmish, after the arguments among members of the committee and Duchamp's subsequent resignation, occurred when *Fountain* was bought on behalf of Walter Arensberg and then ostentatiously removed when the rooms were packed full of people;⁷⁵ then came the leaks to the press, and finally a cultural myth was created with the publication, in number 2 of the journal *The Blind Man*, of an 'official' photograph of the work (illus. 40) together with two explanatory articles, one of them an anonymous editorial and

the other entitled 'Buddha of the Bathroom', signed by Louise Norton. The notices generated by this affair, taken together with other, secondary documents, allow us to interpret the meaning of *Fountain* and to propose a hypothesis concerning its relationship to the *Large Glass*.

A urinal elevated to the level of a work of art cannot, under any circumstances, be considered as something 'neutral'. But it is possible to talk about the beauty to be found in this industrial product, by investing it with subtle iconographic associations and attributing to it new uses which are a distortion of what was originally intended as its 'function'. The first aspect (recognition of its aesthetic interest and the rejection of 'moralist' objections to it) is clearly expressed in the *Blind Man* editorial. As it is not very long but is of great interest, we reproduce it here in its entirety:

The Richard Mutt case

They say any artist who pays six dollars may exhibit.

Mr Richard Mutt sent in a fountain. Without discussion, this object disappeared and was never exhibited.

What were the grounds for refusing Mr Mutt's fountain:—

1. Some contended it was immoral, vulgar.
2. Others that it was plagiarism, a plain piece of plumbing.

Now Mr Mutt's fountain is not immoral, that is absurd, no more than a bathtub is absurd. It is a fixture which you see every day in plumbers' show windows.

Whether Mr Mutt made the fountain with his own hands or not has no importance. He CHOSE it. He took an article of life, placed it so that its useful significance disappeared under the new title and point of view — created a new thought for that object.

As for plumbing, that is absurd. The only works of art America has produced are her plumbing and her bridges.⁷⁶

We have already said that this text was unsigned, but its lack of ornamentation and absolute clarity make it easy for us to attribute it to Marcel Duchamp himself (he was responsible, together with H.-P. Roché and Beatrice Wood, who is mentioned as editor, for the publication in question). This justification for *Fountain* also contains an echo of the famous Futurist arguments advanced five years earlier at the Salon de la Locomotion Aérienne, since it is obvious that it is an attempt to rehabilitate the urinal as a beautiful object.⁷⁷ When he chose it (illus. 44), he must have been thinking about the uncanny similarities of shape that urinals share with such contemporary sculptures as Brancusi's *Princess X* (1916; illus. 42) or with Cycladic art.



41. Duchamp consciously chose the model of the urinal that interested him. The ones reproduced here are from the Verdaguer catalogue of 1916 (such objects were similar in Europe and America).

42. Sculptures like *Princess X* by Brancusi (1916) stimulated the revival by Duchamp of the white object of polished porcelain that was a urinal.

43. Correspondence discovered between the basic shape of the urinal, rotated through 90 degrees, and the 'mountain' in Marsden Hartley's *The Warriors* (1913; see Camfield).



These references presuppose certain anthropomorphic implications. In the same edition of *The Blind Man*, a splendid photograph, taken by Alfred Stieglitz, records the intended placement of the object in the *Exhibition of Independent Artists* and suggests some interesting expressive properties (illus. 40): the urinal, turned through 90 degrees from its normal position, rests its rear part horizontally on a high pedestal; the lighting is at a slight angle, and the point of observation, low and also somewhat at an angle, vividly highlights the more or less oval curved edge. That this effect was consciously sought can be seen in the correspondence between form and structure in Marsden Hartley's *Warriors* (1913), used as a background for the photograph (illus. 43).⁷⁸ This is why *Fountain* could appear as a Madonna or Buddha to Duchamp's friends. These similarities were first noted in the article by Louise Norton, who wrote:

... to any 'innocent' eye how pleasant is its chaste simplicity of line and colour! Someone said, 'like a lovely Buddha'; someone said 'like the legs of the ladies by Cézanne'; but have they not, those ladies, in their long, round nudity, always recalled to your mind the calm curves of decadent plumbers' porcelains?⁷⁹

Duchamp recognized, then, the aesthetic value of this ready-made and bestowed a certain humanoid image upon it (illus. 44). But above all, it was a urinal intended for use by male members of the public: when used as such, urine would describe a more or less pronounced parabola until it made a small waterfall when it landed on the white concavity of the porcelain.⁸⁰ Nobody who is reminded here of the 'waterfall' in the

Large Glass or who sees an anticipation of *Etant donnés* will be wide of the mark. In his note 'Transformateur . . .', Duchamp considered the fall of urine (and other bodily functions) as a matter for vigorous exploitation:

transformation destined to use small amounts of wasted energy such as: excessive pressure on a light switch/exhalation of tobacco smoke/growing hair, skin and nails/the fall of urine and excrement/ . . . the shedding of tears/ . . . vomit/ejaculation . . .⁸¹

A similar type of scatological association between piss and artistic exhibits appears in the manuscript note which Duchamp added to a card from the exhibition of work by Suzanne and Jean Crotti at the Paul Guillaume Gallery (17–27 November 1923): ' . . . it is forbidden to urinate in the gallery.'⁸² I believe that this confirms, indirectly, how impossible it was for Duchamp to forget the normal function of the object when he decided to send it to the *Exhibition of Independent Artists* once he had converted it into *Fountain*.

One could say, then, that *Fountain* is a 'masculine' ready-made. In Stieglitz's photograph, it rests on a firm pedestal, just as the bachelor machine (steam-driven), in one of the notes, rests on a base made of bricks. We have already mentioned that Duchamp placed a miniaturized reproduction of the urinal next to the lower part of the *Large Glass* when he thought of *Boîte en valise*. Also, at the famous 1963 exhibition at the Pasadena Art Museum, this ready-made was positioned underneath, imitating, with *Underwood* and *Air de Paris*, the same layout as the *Boîte*. Some photographs taken specifically on that occasion show the artist next to *Fountain*, as if it were to be used as an ashtray for the cigar which he holds ostentatiously close to the area of his sexuality (illus. 45); Eve Babitz, naked behind the urinal, is suggestive of identification with the concave recipient made of porcelain. So, if the urinal gathers the masculine 'waterfall', what is its real gender?

For me, it is a bisexual object. The photograph in number 2 of *The Blind Man* shows it as being associated with a certain masculinity, the same as one finds in Duchamp's 1964 drawing with the legend *Un robinet original révolutionnaire 'Renvoi Miroirique'* (illus. 46). The explanation of 'what the mirror sends back' is not difficult: the hypothetical user of the object will have his own urine 'returned', like a waterfall flowing backwards, by way of the hole through which water normally falls to clean the urinal. So when Duchamp decided to give the plumbing utensil 'a 90-degree turn', he was not simply trying to continue with his games of



44. Another Buddha as a 'feminine recipient', on the cover of a 1925 popular magazine.

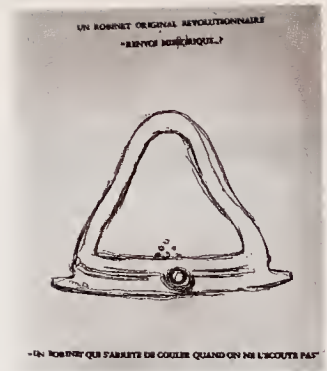
45. The urinal also figured 'below' (imitating the position of the *Boîte en valise*) in the 1963 exhibition at the Pasadena Art Museum. Photos taken on that occasion suggest its function as a masculine tool and feminine 'recipient'.



n-dimensional geometry,⁸³ but to evoke the solipsist meaning of (sexual) masculine activity. With the 'chocolate grinder', the central part of the machinery for bachelors, we are reminded that 'the bachelor grinds his own chocolate' – that is to say, that masculine love-making movement can be circular, masturbatory. *Fountain*, either in the position in which Stieglitz photographed it or in that chosen for the Pasadena exhibition, appears to play the same game with meanings.

But it was also conceived to be hung up. An important vertical photograph shows a corner of Duchamp's studio-apartment in about 1917 (illus. 47).⁸⁴ A semi-transparent male figure is seen sitting in the lower

part of the picture, an effect apparently achieved by means of double exposure. Quite possibly, what we have here is a portrait of the artist with his 'suspended' ready-mades. This seems to be a rehearsal of his plan for the *Large Glass*, with the masculine zone beneath and the feminine one suspended above. The interesting thing is that the urinal is also hanging there, and its white shape stands out, as if it were a horizontal cloud, against the dark background of the door. The similarities with the structure of 'the married woman' are obvious. Although we do not know the exact date, it would seem that this photograph was taken just before or immediately after the episode with the *Indépendants*, which suggests that we are seeing a ready-made intended from the very beginning to have a double function. Or should we be speaking instead of two alternative ready-mades obtained from the same object? This second possibility was certainly not overlooked, as can be seen from the montage of *Fountain* in



46. The drawing *Renvoi miroirique* (1964) is a reference to what would happen if one used the urinal after rotating it through 90 degrees: the fluid would be returned (waterfall in the opposite direction) to its original starting-point.



47. *Fountain* hanging over a 'transparent' self-portrait of Duchamp the bachelor. Or what amounts to the same thing: another evocation of the *Large Glass*. This photograph must have been taken in the artist's studio shortly before or just after the scandal over the *Indépendants*.

48. At the exhibition in the Sidney Janis Gallery in New York (1953), *Fountain* also appeared suspended from a lintel.

the Sidney Janis Gallery in New York in 1953; there too the urinal is hung from a lintel (illus. 48). If that were not enough, one of the notes to the *Green Box*, dated 1914, states with cold precision: 'This is all we have: the urinal in place of the female, and this is how we live.'⁸⁵

It is easy to interpret the female role of this ready-made within the tradition of popular eroticism which has represented the female's seductive body as a receptacle for liquid effusions of different kinds: showers, natural waterfalls, perfumes, etc. (illus. 49). And if we wish to become Freudian analysts, let us remember the association which Duchamp established between the initial of his chosen pseudonym and a money bag: 'Mutt comes from Mott Works, the name of one of the great manufacturers of sanitary equipment,' he said to Hahn.

But Mott was too close to the original, so I changed it to Mutt as in the comedy strip 'Mutt and Jeff', which came out at that time and was known by everybody. So it is that right from the beginning there was a game between Mutt, a funny little fat man, and Jeff, tall and slim . . . I added Richard [a colloquial French expression for a 'moneybags']. Not a bad name for a *pissotière* [bog, loo]. You understand? The opposite of poverty. But not even that much, only R. MUTT.⁸⁶



49. Emanations over the female body, a theme in the traditional iconography of eroticism. French postcard, 1910-20.

The masculine waterfall on the urinal is clearly to be compared with the golden fertile rain which poured over Danae; Steefel spoke of this general meaning of 'piss on her[e]'.⁸⁷

Must we continue to insist on the multiple, complex and 'reversible' meaning of *Fountain*? This work is simultaneously a vindication of industrial beauty, a typically Dadaist provocation and a device of post-Cubist geometrical speculation. But above all, it has to be understood as a sexual machine with a 'double use', a sarcastic toy, rather private, which can only be comprehended when we associate it with the intense mental work which Duchamp was expending at the time on *The Bride Stripped Bare by Her Bachelors, Even*.

WHY NOT SNEEZE . . . ?

All of the works examined up to now revolve, obviously, around the *Large Glass*, and it only remains for us to mention three ready-mades whose inclusion in the 'solar system' of which we have already spoken remains problematical to say the least: *Pharmacie* (1914) has to do with *L.H.O.O.Q.*, but as its relationship with *Etant donnés* is much more

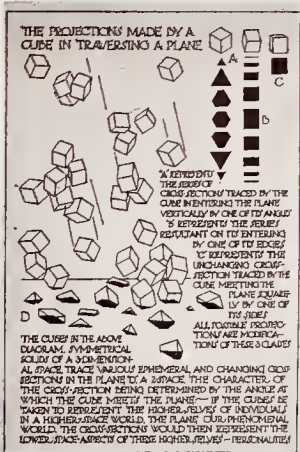
evident, we will speak of it later on; *A bruit secret* (1916; illus. 50) continues to be an enigmatic work as far as I'm concerned, and even though the same aesthetic and geometric preoccupations can be seen in it, I do not find the usual theme of love-making here.⁸⁸ I have long had similar thoughts about *Why Not Sneeze Rose Sélavy?* (1921; illus. 51, 52).

Perhaps we could say a bit more on the subject of this last ready-made. Duchamp produced it after being commissioned by Dorothea Dreier (Katherine's sister), who wanted to have a ready-made of her own, and the not inconsiderable sum of three hundred dollars was paid for the work. Neither of the sisters liked it, and it ended up being bought by Walter Arensberg three years later for the same sum.⁸⁹ It is not easy to explain why *Why Not Sneeze . . .* was rejected. Both women knew Duchamp well, and this ready-made is no more unattractive or 'anti-art' than the rest. In fact, what we have is a little cage, painted white, with a collection of white marble cubes inside, a cuttlefish bone and a mercury thermometer; at the bottom is an inscription/signature which serves as a title for the work. Speaking about this piece, Duchamp mentioned its 'density', as the cubes appear to be made of sugar and we only realize that we have made a mistake when, lifting the cage, we notice that it is too heavy for its contents to be made of *that*. There is also something ambiguous about the thermometer, which can only record the low



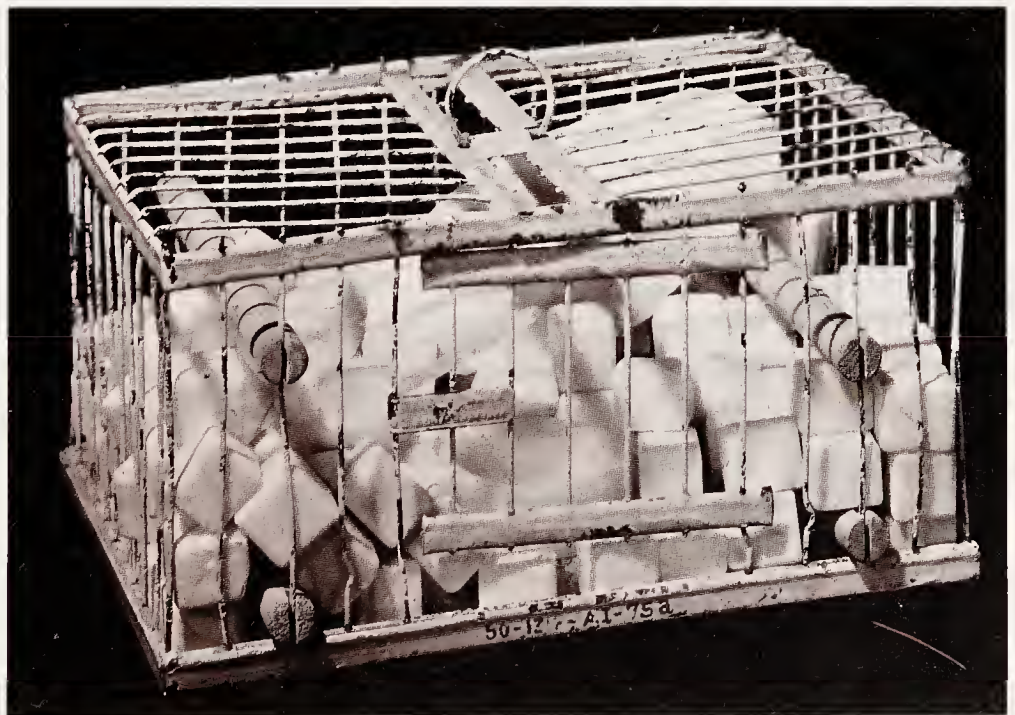
50. In order to hear *A bruit secret* (1916; Philadelphia Museum of Art), we must shake it and bring it close to our ear: another ready-made designed for action and not just to be looked at.

51, 52. Marble cubes, cuttlefish bone and a thermometer inside a cage: *Why Not Sneeze Rose Sélavy?* (1921; Philadelphia Museum of Art) must have been a joke played by Duchamp on his client Dorothea Dreier. One of his sources is seen in this plate from Bragdon's *A Primer of Higher Space* (1913). It is just possible that Duchamp's work was a satire on Cubism and an allusion to the difficulties of love.



temperatures of the contents of the cage. 'In any case,' said its creator, 'there is the marble with its coldness and this means that you can say that you are cold [have a cold] because of the marble, and all associations are permitted.'⁹⁰ As there is no caged bird, nobody pecks at the cuttlefish, which remains complete and immaculate ('virginal', as it were.)

Nor should we discount the convincing connection between these cubes, randomly scattered inside the cage, and Bragdon's 'four-dimensional' diagrams in *A Primer of Higher Space* (illus. 52).⁹¹ The piece could have been a joke at the expense of the 'supposedly classic character of Cubism', something which pleased Duchamp when Steefel told him about it in 1956.⁹² But it is impossible to suppress the suspicion that the work has *other* superimposed meanings to do with love. And, moreover, why should we not suppose that the Dreier sisters might have taken it as a subtle joke? The deceptive sweetness of the sugar, the cold of the marble, the intact cuttlefish (sex), the non-existent bird and the excessive weight: when enumerated in this way, they do not seem to be very flattering 'comments' about a woman. Let us read the title of this ready-made phonetically, in another way, in 'franglais': *why isn't easy eros c'est la vie?* A loose translation could be 'why is love not easy?' And also, if we wish, and since 'all associations are permitted': 'why should we not sneeze (peck at the cuttlefish) [since] love is life?' In this ready-made, the cubes of the 'fourth dimension' are caged; they are not free. If access to this higher



state is a metaphor for love, as everything we know about the *Large Glass* would seem to confirm, Duchamp's attitude gives sufficient indication that this is an impossibility. Frankly speaking, if I were a rich woman who had commissioned a special work and then been presented with this, I would be offended and get rid of it.⁹³

TU M'

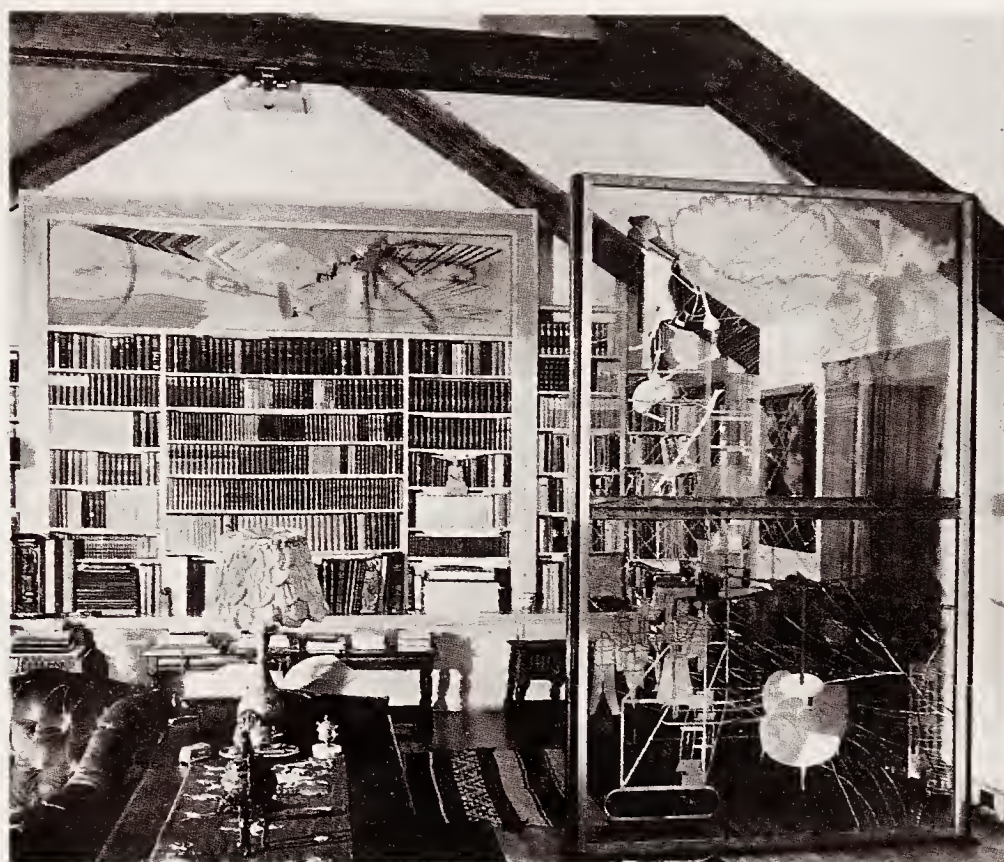
It is possible that Duchamp's attitude in this ready-made had its roots in a previous commission from Katherine Dreier: *Tu m'*. This work, consisting of a canvas measuring more than six by three metres, was intended to fill a large, horizontal, empty space in Dreier's library (illus. 53, 54). The painter's last oil painting, it was completed in New York in 1918 while he was dreaming up some of his ready-mades and putting his earlier speculations in the *Large Glass* into effect. It does not appear that Duchamp thought much of it: '... it is a kind of inventory of all my previous works, rather than a picture in its own right,' he said. 'I have never liked it because it is too decorative; it is not a very attractive activity to sum up all one's own work in one picture.'⁹⁴ One might say that a slight guilt complex inspired by his having yielded to Katherine's demands for a 'decorative' work compelled him to redeem himself with something more acerbic, three years later, when he had completed the commission from her sister.

But *Tu m'* is not only a beautiful picture for filling in an empty space between bookshelf and ceiling. Everyone has recognized the shadow of three ready-mades: the bicycle wheel (illus. 7), the hatstand (illus. 27) and a corkscrew. The last one never materialized, and Duchamp suggested that its painted shadow should be taken as the actual ready-made.⁹⁵ The rulers from *Trois stoppages étalon* (illus. 14) were used in several ways; a degradation in perspective towards an infinity of colour exhibits and a hand produced (and signed) by an industrial painter called A. Klang complete the work's pictorial aspect. Between the *diamonds* of colours and the shadow of the hatstand, there is a tear in the canvas painted as a *trompe l'oeil*, although 'mended' with real safety pins; from this fictitious crack emerges a brush for cleaning bottles (bums) which invades the viewer's real space.

Given our interpretation of the ready-mades, we have no choice but to assume the erotic significance of *Tu m'*, whose title would not only be the beginning of 'tu m'emmerdes' (you bore me), as Schwarz has



PHARE DE LA MARIÉE.
Par ANDRÉ BRETON



53. *Tu m'* (1918), Duchamp's last oil painting, has to be considered as a kind of horizontal, anamorphic version of the *Large Glass*. We reproduce it here 'vertically', taking the bed head from Breton's article written as a commentary on *The Bride Stripped Bare by Her Bachelors, Even* (*Minotaure*, no. 6 [1934]).

54. *Tu m'* and the *Large Glass* as they have remained, face to face, in the library of Katherine Dreier's house in West Redding, Connecticut, since Duchamp restored the latter work in 1936.

observed, but also (and possibly fundamentally) 'tu m'aimes' (you love me). Read in 'franglais', it is 'tu me' – that is, 'you and me'. Once again, the poles oppose each other, like the meeting (or otherwise) of the two sexes.

But I think that the correct approach is to consider this painting as a type of opaque and horizontal version of the *Large Glass* (illus. 53, 54). To the left, the shadow of the bicycle wheel represents the bachelors' dominion; the corkscrew could be assimilated into the spiral helter-skelter; the hand points towards the bride's sphere and can be identified with the ophthalmic witnesses and the boxing match; only the shadow of the hatstand can be imagined as being locked up in a cage randomly constructed with the rulers of the 'shortened metre' and alludes, supposedly, to the female pendant of the *Large Glass*. The thematic and structural similarity between these works is seen even more clearly if we imagine a vertical position for *Tu m'* (the wheel below and the hatstand above) or a horizontal position (the bachelor machine to the left) for *The Bride Stripped Bare by Her Bachelors, Even*.

I do not believe that it is correct to imagine too literary a history, such as that of the bachelor who was hanged after having gratified his incestuous desires,⁹⁶ since nothing of this is suggested in the notes to the *Large Glass*. Duchamp himself, in a very revealing slip of the tongue, confirmed the interpretation we are now proposing when, speaking with Cabanne about *Tu m'*, he mentioned 'the shadow transferred from the hatstand above'.⁹⁷ This challenges Ulf Linde's identification of the connection between the bicycle wheel and the gravity controller of the *Large Glass*, as it implies placing the shadow of the hatstand 'beneath', and not 'above', as the artist wished.⁹⁸ His last oil painting is, then, the best bridge between the ready-mades and the masterpiece on glass, of which it is also an anamorphic and flattened version. It is not easy to establish frontiers in such coherent work as Marcel Duchamp's.

Table 3: Structure of the ready-mades.

	TECHNICAL ASPECTS AND MATERIALS. 'PRIMARY' AESTHETIC VALUE.	GEOMETRICAL AND/OR SPECULATIVE ASPECTS.	EROTIC SIGNIFICANCE.	RELATIONS WITH THE LARGE GLASS.	OTHER ASPECTS.
BICYCLE WHEEL (1913)	Fragment from a bicycle (idea from pedometers) and a stool. 'Relaxing' circular movement.	Creation of a sphere by double rotation of the wheel and fork. Dissolution of the spokes/lines in continuous circular movement.	Circular 'manual' movement (masturbation). The fork (masculine element), painted black, is mounted on the stool, (feminine element) painted white.	The wheel is associated with the bachelors' mechanism and, according to Linde, must be identified with the controller of gravity.	Subliminal self-portrait of Marcel Duchamp as a bachelor.
TROIS STOPPAGES ETALON (1913-1914)	'Random' threads stuck to pieces of material in three layers of glass plus three planks of wood. Possible inspiration in the cases of rulers for technical drawing.	Joke about the standard metre and immutable measurements. Invention of a new system for patterns starting with the 'shortened metre'.		Technique of the 'stuck thread' common to both works. Sheets of glass. Rulers used to draw 'capillary tubes' of the <i>Large Glass</i> .	
PHARMACIE (1914)	Cheap reproduction of 'pictorial' landscape, with two drops of colour added (red and green).		[Central hole vaguely associated with female sexuality.]	'Illusionist' landscape with aquatic elements not seen in the <i>Large Glass</i> .	Precedent for the landscape and 'in relief' arrangement of <i>Étant donnés</i> .
BOTTLE RACK (1914)	For drying bottles. Sculptural beauty of decontextualized metal object. 'Hedgehog' (Man Ray).	Possible allusion to the Klein bottle.	Teeth (masculine) received by the bottles (feminine).	Similarity of shape between the object and malic moulds.	The observer must take part in the practical (and sexual) act of putting the bottles in their place.
IN ADVANCE OF THE BROKEN ARM (1915)	Snow shovel, beautiful typically American object.	Creation of n-dimensional space by the circular movement of the operator.	Phallic symbol. Snow discarded like sperm.	Associated with splash in bachelor zone.	
A BRUIT SECRET (1916)	Little ball of string between two layers of brass compressed by screws. Inside of the object unknown.	Alternating movement and curve (generator of space) to produce the 'secret noise'.			
PEINE (1916)	Steel dog comb with virtually unbreakable teeth. Bears an inscription.	Its use generates n-dimensional space. 'Curved comb'. The place for art is in the brain.	Combing the hair is psychoanalytical code for sexual caressing.		Duchamp imagined a hypothetical classification for combs according to number of teeth.

	TECHNICAL ASPECTS AND MATERIALS. 'PRIMARY' AESTHETIC VALUE.	GEOMETRICAL AND/OR SPECULATIVE ASPECTS.	EROTIC SIGNIFICANCE.	RELATIONS WITH THE LARGE GLASS.	OTHER ASPECTS.
PLIANT . . . DE VOYAGE (1916)	Empty cover for a type-writer, like a skirt. Underneath 'there is wood' (Underwood).	Feminine figure perhaps escaped to the fourth dimension.	Receptacle of femininity.	Associated with the bride's apparel in the horizontal plane of the <i>Large Glass</i> .	Viewer invited to explore 'under the skirt'.
APOLINERE ENAMELED (1916-1917)	Advertisement for industrial paint altered to create a personal joke.	Movement of the paintbrush generates n-dimensional space.	The child paints (caresses) the bed, making it rise.	The bed is associated with the glider, the mirror with the ophthalmic witnesses, and the child with the virgin in the <i>Large Glass</i> .	Possible criticism of the conservatism of Apollinaire, whose avant-garde era would be 'enamelled'.
TREBUCHET (1917)	Coat hanger nailed to the floor like a 'permanent' sculpture.	Generates n-dimensional space (complex rotary movement by whoever trips over it).	The 'tripper' is in love (tacitly masculine).	Vague association with the bachelors' sphere.	Opposite of the hatstand, which is a suspended ready-made.
PORTE-CHAPEAU (1917)	Hatstand suspended 'like a spider'.	Use of the projected shadow, a metaphor of passage into the hyperdimensional universe.	Spider (feminine), which traps the male.	Identifies with the 'female pendant'.	Comparable to the other suspended ready-mades.
FOUNTAIN (1917)	Men's urinal for resting on a pedestal (turned through 90 degrees) or hanging from the roof. 'Pure beauty' of an industrial object.	Rotation of the urinal: n-dimensional geometry.	Masculine object and female 'recipient': meeting of the sexes. Masturbatory and copulatory meaning (what the mirror returns).	As a supported ready-made, it relates to the bachelor's mechanism. As a suspended ready-made, it is in the bride's sphere.	In reality two ready-mades, according to position (suspended or supported), both imagined by Duchamp. Clear anthropomorphic associations (Buddha, Madonna).
SCULPTURE A VOYAGE (1918)	Pieces of rubber from bathing caps designed for hanging in many different places.	Occupation of any space generating infinite geometric arrangements.	Association with the spider (and/or praying mantis) which traps (and/or devours) the male.	Identifies with the bride, suspended in the upper part.	Supreme example of random creation. Nowhere else does the the spectator (and circumstances determine the shape of the work so much.
READY-MADE MALHEUREUX (1919)	Geometry textbook hanging from a thread on the balcony.	Mathematical examples from the book bend and move to create n-dimensional geometry.	Wedding gift for his sister Suzanne. Love (4th dimension) hanging by a thread(?).	Associated with the bride and the meeting of the 2 spheres of the <i>Large Glass</i> (it is a wedding gift).	Introduction to a ready-made of the human (and sexual) category of unhappiness.
AIR DE PARIS (1919)	Empty phial of transparent glass sealed in Paris. Inspired by the equipment in a laboratory.	Air also identified with 'area' in the geometric sense.	Association with feminine shapes. Untransferable perfume of love.	The same glass material as is in the whole of the <i>Large Glass</i> . Identifies with the bride.	Extreme fragility of the work, like the very fragrance of love.
L.H.O.O.Q. (1919)	Demystification of the <i>Mona Lisa</i> by drawing a moustache and goatee on a cheap reproduction of Leonardo's work.	This figure with masculine attributes is a man. 'She' is the person looking out: n-dimensional geometry.	'She has a hot bum' (sexual allusion): words of the visible person that are relative to the hypothetical female observer.	Two poles: masculine and feminine. Glance can be associated with the 'ophthalmic witnesses'.	Remotely related to <i>Etant donnés</i> . Commentary on the tautological relationship between painter and observer.
BELLE HALEINE, EAU DE VOILETTE (1921)	Transformed bottle of perfume with a photo of Rose Sélavy.	Inverted initials: geometric mirror image.	'Breath from below' the perfume of love.	Glass material of the bottle. The perfume of Rose Sélavy as 'gasoline of love': relation with the 'married woman'.	
WHY NOT SNEEZE ROSE SÉLAVY? (1921)	Cage with white marble cubes, a thermometer and cuttlefish bone.	Evocation of Bragdon's cubes. A joke about Cubism?	Impossibility or difficulty of love (Why isn't easy eros c'est la vie).		Possible joke (or veiled insult) about Dorothea Dreier (possibly also Katherine).

‘Precision Painting . . .’
(The Mechanisms of Bachelors)

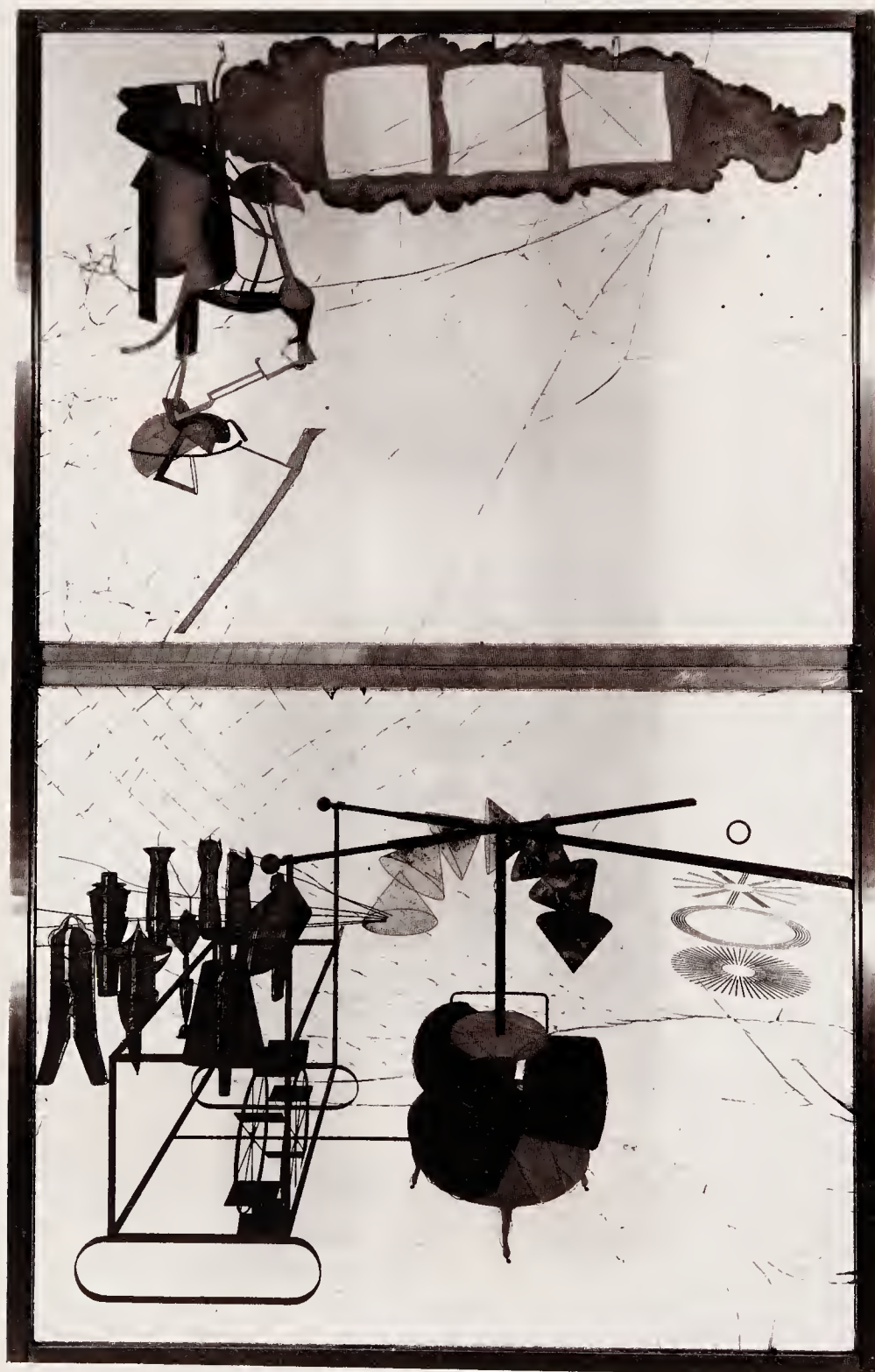


THE *LARGE GLASS*: PRELIMINARY QUESTIONS

The Bride Stripped Bare by Her Bachelors, Even consists of two pieces of glass, one superimposed on the other and forming a rectangle which measures a total of 227.5 by 175.8 centimetres (illus. 55). Duchamp had been thinking about this work since 1912, but did not make a start on it until he moved to New York three years later; in 1923, he stopped work on it, although not completely; then in 1936, he undertook the 'restoration' of the two panels, which had been accidentally damaged a decade earlier. We shall return to these details later on; for the time being, it is more important to recall some of the circumstances which influenced the initial gestation of the *Large Glass*. Marcel's journey to America in 1915 was a decisive event. Distanced from shell-shocked, blood-soaked Europe, he was on the other side of the Atlantic with a stimulating group of friends including Walter and Louise Arensberg, Gleizes and Picabia. He immediately made the acquaintance of Man Ray, with whom he was to enjoy a long artistic dialogue which was to prove extremely productive for the history of contemporary art. Everyone in this group must have been aware of Duchamp's desire to make a great 'machine' which would be the exact opposite of the paintings on canvas which stubbornly continued to dominate the Salons.¹

We have already noted that one of Duchamp's heroes at the times was Raymond Roussel, and it was to him that the artist attributed the responsibility for the *Large Glass*: 'His *Impressions d'Afrique*', Duchamp said,

gave me the broad outlines of the route I had to take. This work, which I saw together with Apollinaire, was of enormous help to me in one of the aspects of my self-expression . . . I thought that, as a painter, it would be better to be influenced by a writer than by another painter. And Roussel showed me the way.²



55. *The Bride Stripped Bare by Her Bachelors, Even* (1915-23; Philadelphia Museum of Art) was damaged in 1926 and then restored and completed in 1936 by Duchamp.

Duchamp attended a theatrical performance where some of the strange machines described in the novel could be seen (illus. 56). The similarity between these objects and the *Large Glass* is quite surprising. Speaking of the glass box belonging to the physicist Bex, for example, Roussel said that it contained an electric motor and a few strange pistons for regulating the interior temperature.³ This and other contraptions function ‘in the text’, and we cannot make too many conjectures concerning their fleeting appearance in the stage version. Duchamp, on the other hand, seems to have wanted to find a middle ground for them, halfway between the literary description, their hypothetical existence as concrete objects and their representation in terms of the procedures involved in technical drawing.

The choice of glass as a pictorial base is not as strange as the present-day observer might believe, since there was a long tradition of transparent pictures for magic lanterns and dioramas.⁴ Of course, it was not normal to use glass in large pictorial ‘machines’ of the type intended to enhance one’s reputation. Much later, Duchamp justified his use of glass by referring to its transparent luminosity and the unchanging purity of its colours. He also alluded to its rigid smoothness as something highly suited to mathematical design. ‘Glass has saved me on account of its transparency,’ he said when speaking about his rejection of the inevitable superfluity of colours obtained by painting on an opaque surface. ‘Glass, being transparent, gave maximum efficacy to the rigidity of perspective and eliminated, equally, all idea of “paste”, or material.’ And also, ‘... paint always gets dirty, it turns yellow or ages after a short time due to oxidation; however, my colours were completely protected, since the glass kept them pure and unaltered for a long time.’⁵ In a note to the *Green Box*, he

56. An old photograph of the stage version of *Impressions d’Afrique* by Raymond Roussel (1912); it does not appear that the machines on stage had too great an effect on Duchamp’s iconography (nevertheless see illus. 83).



mentions the distinction between light and colour which is peculiar to works done on glass: '... the material of each part is at the same time a source of both light and colour; or to put it another way, the colour as seen in each part is the source of the coloured visibility of that part.'⁶

These are the ideas of someone who had latched on to some of the extremes of Analytical Cubism and Expressionism. The geometric decompositions with an infinite number of cracks found in paintings by Picasso and Braque made between 1909 and 1911 might have made one think of the difficult problem of natural glass. It is as if reality were seen through infinite transparent facets, or as if the painted shapes miraculously inhabited the interior of dimly lit caves. Marcel's brothers exaggerated this metaphor, and not only in their paintings. The model for a 'Cubist house' presented by Raymond Duchamp-Villon to the Salon d'Automne of 1912 consisted of a symmetrical, architectonic, basically classical structure, but adorned with geometric accessories of crystalline appearance (illus. 57). The desire to make a painting 'transparent' was an obsession with the German Expressionists, and of course it had very interesting consequences in other fields, such as architecture and the cinema. Duchamp must have taken great interest in observing the most advanced art in Munich during the summer of 1912. It appears that many of the things he saw during the year of the 'rupture', in both France and Germany, urged him on to create a great work on glass.

Also of interest is his fascination with the fourth dimension. In the last years of the nineteenth century and first years of the twentieth, more or less novel accounts and treatises were published on geometry which contained discussions about the theoretical viability of other 'worlds' not governed by three-dimensional space. In *Flatland*, by Edwin A. Abbott, the existence of two-dimensional beings was discussed, and the countries of the line (Lineland) and dot (Dotland) were mentioned, not without humour. The difficulties which the inhabitants of each of these countries had in imagining what the others looked like suggested an attempt to convince the reader of the probable existence of a four-dimensional reality.⁷ We do not know if Duchamp was familiar with this little novel, but it is certain (Jean Clair proved it in the mid-1970s) that he read G. de Pawlowski's *Voyage au pays de la quatrième dimension*, the first complete edition of which appeared in 1912, just a short time before the idea for the *Large Glass* occurred to Duchamp.⁸ It has also been shown that the young Marcel studied something at Flammarion along the lines of *Traité élémentaire de géométrie à quatre dimensions* by E. Jouffret (1903); he may also have known Claude Bragdon's *Primer of Higher Space: The Fourth*



57. Raymond Duchamp-Villon, façade of the Cubist House exhibited at the 1911 Salon d'Automne. This photo was published in *L'Art décoratif* [February 1913].

Dimension (1913), although I am inclined to think that he saw this work in the United States after 1915, when he was also working on the overall plan for *The Bride Stripped Bare by Her Bachelors, Even*.⁹

Whatever the case, Duchamp's reading of these books (and the more or less outrageous interpretations of them which he must have heard at the Puteaux salons) caused him to conceive of his work as a great metaphor for the illusions of sensory perception and our possible transcendence into 'higher' space. We will see the significance of all this later on. I want merely to suggest that I do not believe that Duchamp had a particularly profound knowledge of such mathematical texts, and everything indicates that his attitude towards them was characterized by the same lack of seriousness that characterized his attitude to other cultural and scientific dogma. His statements in this connection were explicit:

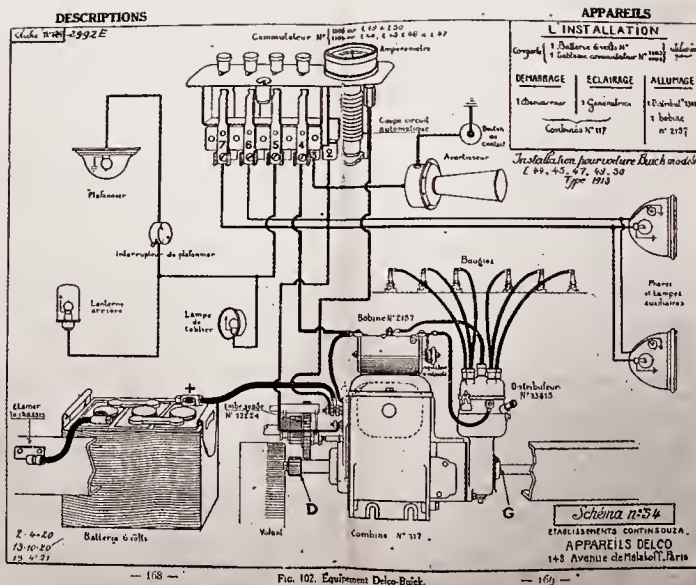
I was interested in introducing the exact and precise aspect of science . . . But I did not do so out of a love of science but, on the contrary, because I wished to discredit it in a sweet, gentle and unimportant manner. Irony was present.¹⁰

And, speaking even more clearly in another context: 'Humour and laughter – not necessarily the derogatory joke – are my preferred instruments. This may derive from my usual philosophy of never taking the world too seriously, for fear of dying of boredom.'¹¹

It seems logical, assuming these premises to be true, that the *Large Glass* closely resembled the diagrams used in technical-drawing manuals and treatises on geometry.¹² There is thus a connection with a typical preoccupation of Duchamp's epoch such as the representation of the complex universe of machines in a rigorous and standardized manner.¹³ Books and pamphlets on popular mechanics illustrated machines by mixing relatively realistic elements with diagrams: the vision of a shared perspective fitted in with abstract diagrams of a didactic nature and mathematical appearance (illus. 58). Almost all the Dadaists, not only Duchamp, derived inspiration from such things.

There was a certain connection here with his plan to produce an instruction manual or explanatory pamphlet to accompany the *Large Glass*. 'At the end of the day,' Marcel wrote in a letter to Jean Suquet,

the glass was not made for people to look at (through aesthetic eyes); it had to be accompanied by a 'literary' text which was as amorphous as possible and destined never to acquire any specific shape; and both elements, the glass for looking at and the text for listening and understanding, had to complement each other and, above all, prevent each other from acquiring a plastic/aesthetic or literary form.¹⁴



*pour le texte de
la dernière mise à jour...*
*Faire un livre rond c.à.d.
sans commencement ni fin
(Soit que les feuilles soient
détachées et mises en ordre
par le dernier mot de la page
répété à la page suivante (pas
de pages numérotées). Soit que
le dos soit fait de cercles
en autour desquels les
pages tournent*

*Vois aussi
pour la forme
des pages.*

We have no idea how this 'booklet' might have turned out, since Duchamp seems to have toyed with various ideas. One was 'to produce a round book, with no beginning and no end', with a spine made up of 'rings around which the pages gyrate' (illus. 59).¹⁵ He also said that the notes to the *Large Glass* were to be 'like a Sears Roebuck catalogue', acquiring 'the same degree of importance as the visible material'.¹⁶ It seems almost certain that, together with the images painted on the glass, there would have been letters, and possibly numerals, which referred to various passages in the catalogue, as in the instruction manuals for industrial machinery; some notices, such as those for the chocolate grinder (illus. 82), could have appeared in the pamphlet like commercial advertisements, independent of their eventual repetition in the glass proper.¹⁷ Duchamp also thought of a 'poem',¹⁸ although the dominant feature was to be the coldness of a merely explanatory text¹⁹ or mathematical explanation.²⁰

We know that the work was abandoned before it was completed, and only in 1934 did the 320 exemplars of the *Green Box* appear. Duchamp named this work in the same way as he had named the *Large Glass*, thus indicating his desire that the two should be thought of as being connected.²¹ We are not talking about a catalogue, round book, poem or demonstration: he simply selected 93 old working notes, published facsimile copies of them and put them into a box, unnumbered and unbound. This, then, is primordial material for interpreting the significance of *The Bride Stripped Bare by Her Bachelors, Even*, which is not the

58. A diagram of a car's electrics, from a manual dating from the early 1920s, J. Rosaldy, *L'Équipement électrique des automobiles*. In books on popular mechanics, actual pictures were shown side by side with abstract diagrams.

59. The explanatory booklet which was to accompany the *Large Glass* could have been a 'round book' (Notes, no. 66).

same as saying that everything is completely understood. The problem with these annotations (just as with the other 'boxes' or the notes published later by Paul Matisse) is that they lack order, and we do not always know what they refer to or the exact significance of all the texts and diagrams. Nor are they dated, with the exception of one or two. As if that were not enough, there is also the suspicion that 'a neat copy' of them was made by Duchamp himself (or perhaps they were re-done) in preparation for their inclusion in the *Green Box* at the beginning of the 1930s.

Many of these problems can be simplified if we consider these notes as the artist's raw material, deliberately left unpolished and virtually unsorted. That is to say that not everything in the *Green Box* refers to the *Large Glass* in the Philadelphia Museum. A great number of these annotations refer to abandoned ideas or projects. It is not that they describe things which are 'invisible' in the *Large Glass*; rather, they describe random ideas which occurred to the artist at odd moments, but never ended up being used in the final project. This explains their obscurity and distance. If we take a serious look at these notes (as I believe we should) and distinguish between those which refer to previous projects and those which describe what is actually on the glass, all of Duchamp's work appears before us with great coherence and clarity. It is possible, then, to reconstruct the preliminary hypothetical concept of many parts of the *Large Glass* and to follow the development of these ideas, from the first rough sketch to its eventual abandonment or inclusion in the definitive 'plan' of the work. This archaeological operation is important because it permits us to identify the chronological strata of meaning and to see the totality in terms of its various stages. There was no confusion in Duchamp's thinking, but there were semi-transparent semantic layers, different moments dedicated to one or several ideas. I believe that, if we handle them with care, we can separate them out.

A 'FUTURIST' CONTRAPTION

The title *La mariée mise à nu par ses célibataires, même* (*The Bride Stripped Bare by Her Bachelors, Even*), written on the back of the work, illustrates this general theme. The word *même* written after the comma has no special significance: '... it is, then, an adverb in the most beautiful demonstration of an adverb,' Duchamp said astutely.²² None the less, it is difficult not to see in it some relationship with the 'm' of *Tu m'*, or to read into it something else such as *m'aime* (love me! or he/she loves me). When all is said and

done, it is quite evident that the whole work speaks of love.²³ The lower rectangle is dedicated to bachelors and to all of the complex operations which they experience or suffer because of the presence of the bride, suspended in the upper part. Duchamp also thought of several subtitles, and in one of the notes to the *Green Box* he wrote: 'Delay on glass. Use delay in place of a picture or painting.'²⁴ Much later, talking to Cabanne, he tried (as he frequently did) to underplay the importance of the expression: 'I wanted to give the word "delay" a poetic meaning which I could not even explain . . . I liked the word "delay" so much at that time, like a phrase which one just come across.'²⁵ The relationship between the bachelors' part and that of the bride is, in the *Large Glass*, complicated and delayed. This may have something to do with Duchamp's own attitude to love: distant and casual. Beatrice Wood, for example, told us something about the time when she, H.-P. Roché and Marcel Duchamp formed a triangle of inseparable friends around 1917; when she talked about the time when physical contact with Marcel seemed inevitable, she said how phlegmatic he was, how he was in no hurry and how he fell back on his favourite phrase: 'It's of no importance.'²⁶

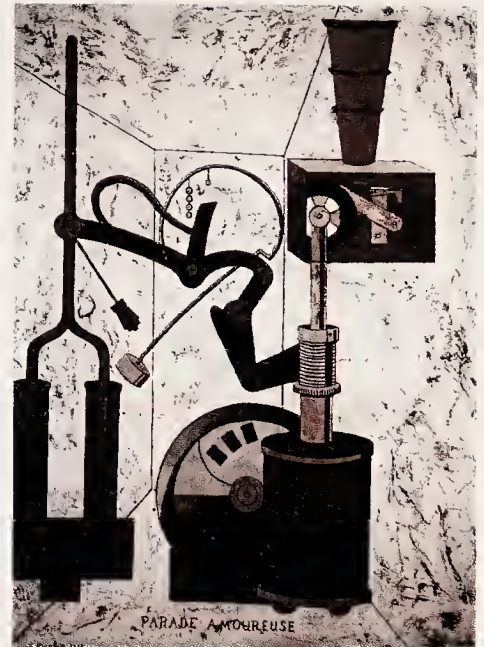
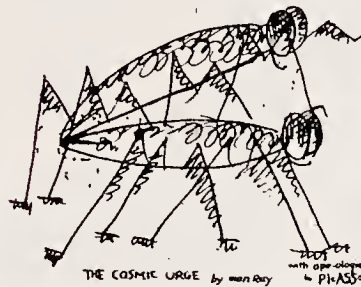
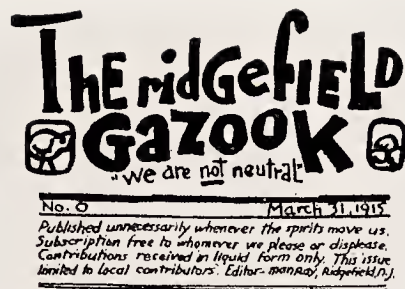
A close examination reveals that there is no doubt that sex and love are represented in the *Large Glass* in a shameless manner, as if the intention were to place desire in the realm of the absurd. In a 1918 letter to Jean Crotti, Duchamp referred to his work as 'cette grande saloperie' (the great crap),²⁷ and everything points to the fact that he retained this opinion of the work's significance more or less unchanged over the years. André Breton recognized it, of course, when he wrote his famous analysis of *The Bride Stripped Bare by Her Bachelors, Even*:

To tell the truth, we find ourselves here in the presence of a mechanical, cynical interpretation of the phenomenon of love: the transition of the woman from the state of virginity to that of non-virginity, considered as a subject for profoundly a-sentimental speculation. One might say that it is characteristic of a super-human being to try to imagine this type of operation.²⁸

In the *Bride*, Duchamp coincided with the thematic universe of the other New York Dadaists. Picabia, from 1912 on, and Man Ray, a little later, insisted on representing love as a blind force. Insects and machines were alike in their anti-romantic way of 'loving' and reproducing themselves (illus. 60, 61). What we are talking about here is the central theme of Dadaist iconography,²⁹ which came to be such an obsession that it was used as a means of reproach by the movement's enemies. 'At times, the case for considering the movement pathological seems brutally conclusive,'

60. Love as a 'cosmic force' on the cover of *The Ridgfield Gazook* (Man Ray, 1915).

61. *Parade amoureuse* (1917) by Francis Picabia. The Dadaist machines were less logical in their mechanical functioning than those conceived by Duchamp for the *Large Glass*.



Gleizes wrote about the Dadaists in 1920. 'Their brains are constantly tormented by sexual delirium and scatological angst. The defect appears in its full form . . . They are obsessed by reproductive organs.'³⁰

It is obvious that by saying such things, the Dadaists did nothing more than advance the premises of the Futurists. The anti-feminism of the Italian avant-garde has been interpreted in a rather simplistic manner, since it seems that they placed great emphasis on a rejection of the romantic woman idealized by the Symbolists. Some of their sarcastic mechanical-amorous hyperboles seem to have been literary anticipations of Dadaist creations. Let us take a look at one of Marinetti's examples:

The man of the future will reduce his heart to its true distributive function. The heart must be, to a certain extent, a type of stomach for the brain which is fed methodically so that the mind may commence activity. Today, we meet men who pass through life almost without love, in an atmosphere the colour of steel. Let us see to it that the number of these exemplary men increases. These energetic beings do not have a lover to visit at night, but every morning they enjoy checking on the condition of their organic machine with some trifling sexual activity.³¹

Texts such as these seem to prove, once again, the debt which the young Duchamp owed to Futurism.

The *Large Glass*, to sum up, is an eroto-mechanical metaphor, with a logic of function that is as disciplined as it is hilarious. This obliges us to examine all of the iconographic elements separately as if they were parts of

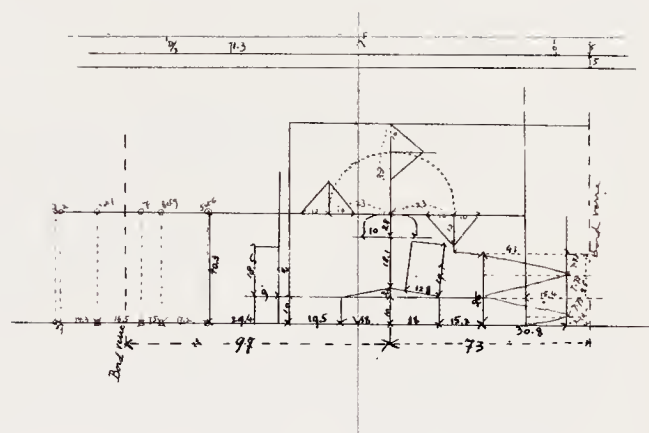
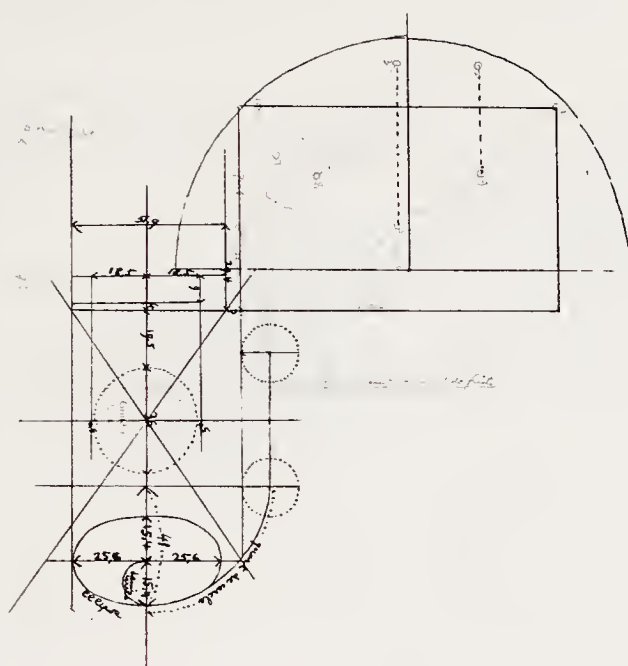


62. General plan for *The Bride Stripped Bare by Her Bachelors, Even*, according to a drawing made in Neuilly in 1913 or 1914.

a real machine. It is essential to study the form and function of these ingredients, aided by Duchamp's notes, but it is also important to take account of their origins. Certain objects from the industrial world (machines, tools, images) inspired the artist, and a knowledge of them explains many things about the organism represented in (or thought of for) the *Glass*. Let us look at the different elements before we ask ourselves any questions about the global significance of the unique 'pictorial machine'.

THE 'SOLIPSISTIC MACHINE' AND THE 'CONJUNCTIVE APPARATUS'

The general layout of the *Large Glass* seems to have been decided as early as 1913, to judge from the famous drawing on tracing paper done in Neuilly (illus. 62).³² The lower panel, dedicated to 'bachelors', was planned with great mathematical rigour, and all of the elements are subject to the laws of perspective: a single escape point, situated in the exact centre of the upper edge, regulates the visual relationship of all of the objects. Duchamp also included the ground plan and elevation, as if it were a school exercise by a diligent student who wished to illustrate the mathematically correct workings of the machinery displayed (illus. 63, 64).³³ But it is advisable to take a careful look at them because they illustrate a very important point: the

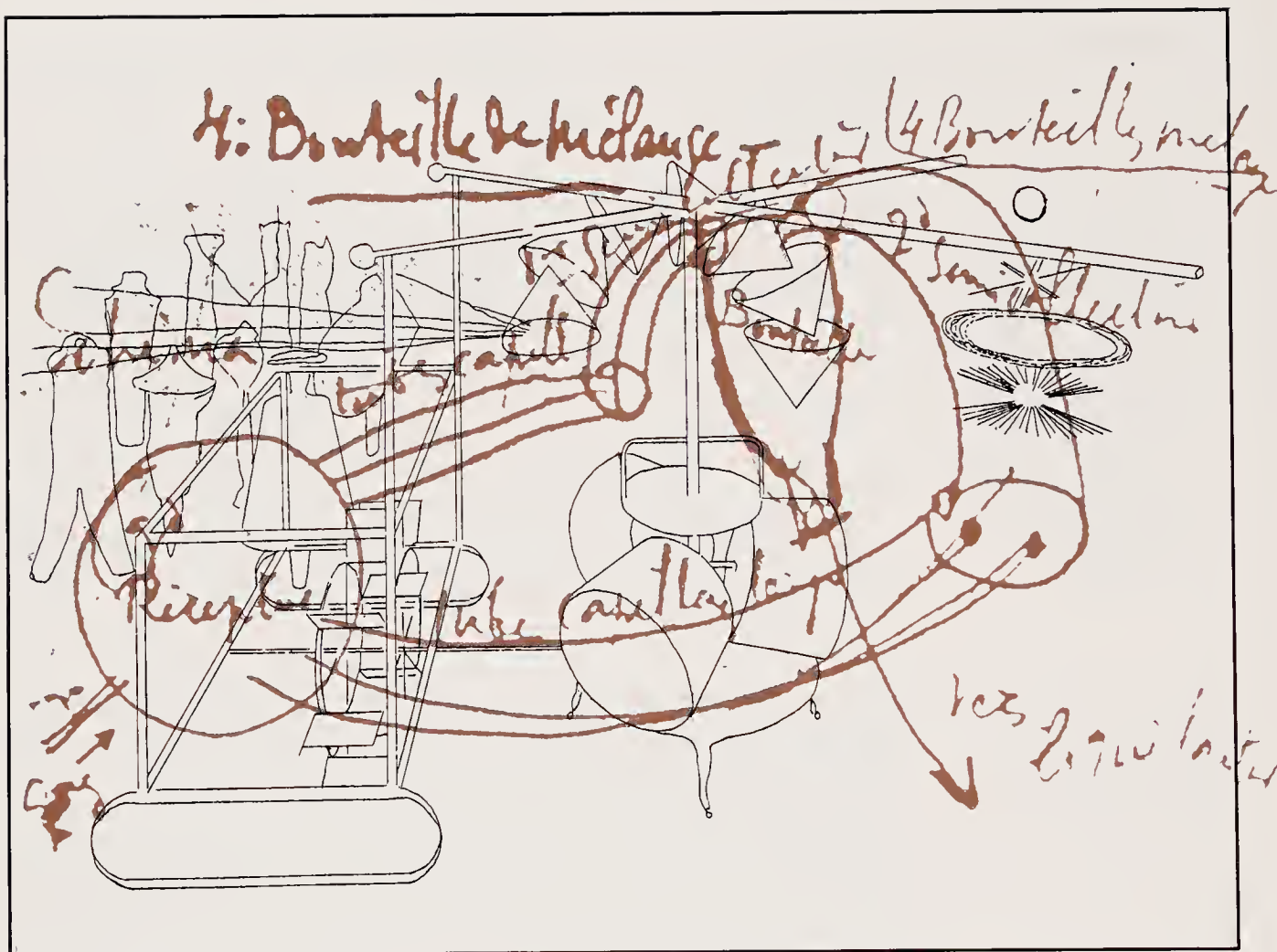


63, 64. Ground plan and elevation of the bachelor machine in the drawings included later by Duchamp in the *Green Box*.

elements are situated on different spatial levels. This preoccupation was already evident in some initial speculations, as can be seen in the note entitled 'Depth': '4th level Great Receiver (which passes beneath the waterfall) / 3rd level Capillary tubes / 2nd level Triangular filter / 1st level Butter churn'.³⁴

What are not mentioned here are some of the most striking elements of the machine demonstrated later on, but there is a good definition of the idea that the gas (or whatever) undergoes several operations and passes through the bottom of the first level. It seems that the so-called 'Great Receiver' was changed into malic moulds, and the 'Triangular Filter' became the origin of the sieves; as we shall see, the idea for the butter churn seemed unnecessary in the final layout (illus. 65). We should note the absence of the glider and the chocolate grinder with its blades or scissors, one more proof that these elements constitute a relatively independent organism which was added *afterwards* to another one whose functional logic was defined in retrospect. To put it another way, the lower panel of the *Large Glass* does not contain just one bachelor machine, but *two mechanisms* which function independently and share a unique visual space. Each refers to different processes, and their functions can be confused only because of their transparent juxtaposition.

The first of them (which from now on we shall call the *conjunctive apparatus*)³⁵ appears to float in space and consists of two malic moulds; these produce gas which is conducted through capillary tubes to the base

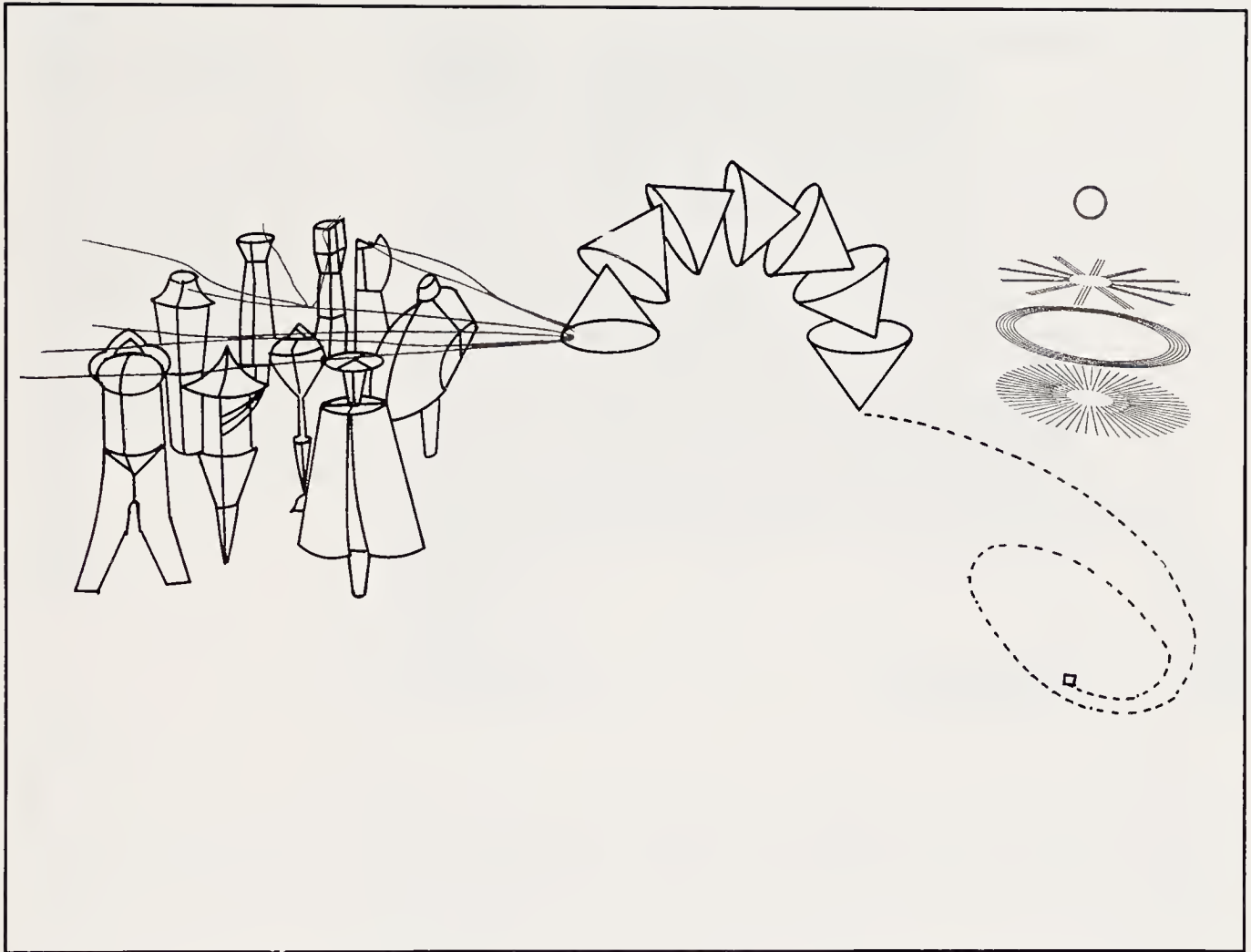


of the first sieve; this gas undergoes a series of transformations as it passes through seven cone-shaped sieves and then falls and makes a splash before being projected randomly into the sphere of the bride by way of two ophthalmic witnesses and the boxing match (not shown) (illus. 66). This progression occurs from left to right and from the background to the foreground (always assuming, naturally, that we are looking through the glass from the unpainted side). It seems evident that Duchamp wanted to use all of this to depict the delirious and random way in which masculine sexual energy comes into contact with the feminine.

But standing in front of these elements, with no mechanical contact between them, are the glider with the wheel operated by the waterfall, and the chocolate grinder; both are 'hooked' to the little bar (the axle) in the lower part, by means of the blades of the 'scissors' which grasp the glider's

65. Receiver, mixing bottle and capillary tubes (*Notes*, no. 114), a primitive idea which was supplanted by the construction of the machinery for bachelors.

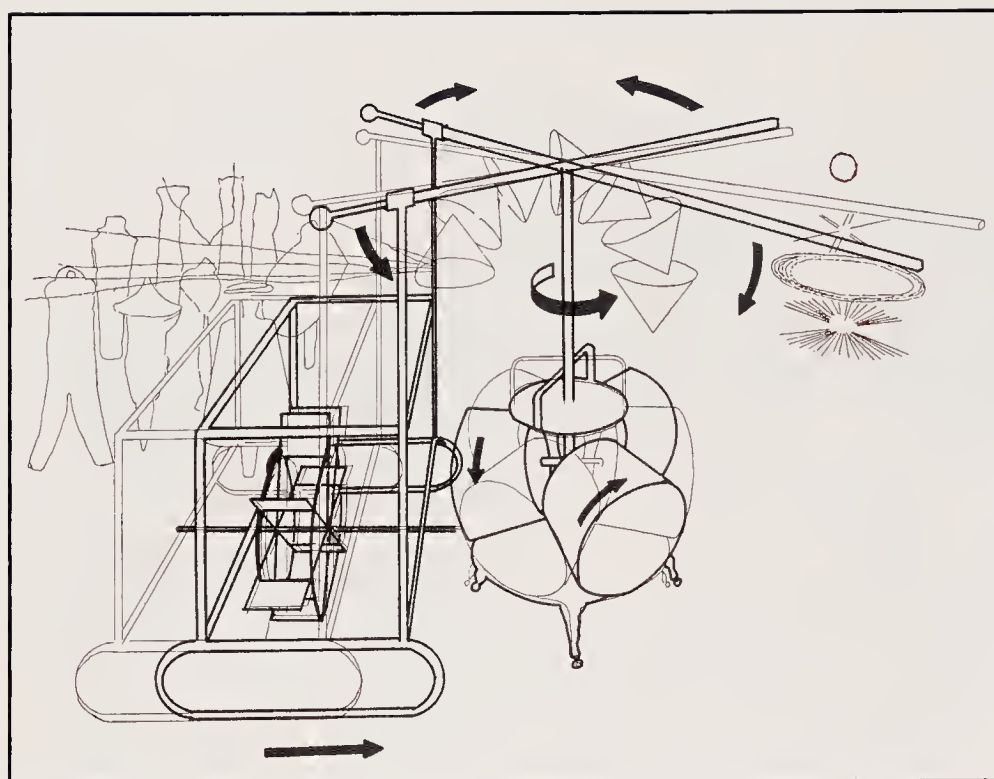
66. In the panel beneath the *Large Glass* are two independent pieces of machinery. The one which enters into contact with the bride, which we call the



conjunctive apparatus, consists of the malic moulds with capillary tubes, sieves, a helter-skelter (not shown on the *Glass*) the opticians' charts and a magnifying glass. The gas produced in the moulds on the left go through different changes as it passes along a complex course from left to right until it is projected into the upper zone.

two vertical extensions. The movements produced by this organism are not directed towards the sphere of the bride,³⁶ and thus we will call it the *solipsistic machine*. From a mechanical point of view, two possible functions exist for it:

1. Simultaneous working of the wheel operated by the waterfall and the rollers which grind the chocolate, in which case the blades' circular movement will cause the glider to move in a circle around the chocolate grinder, and vice versa; the little wheels on the feet of the grinder's platform make its displacement in either direction plausible, as with the glider if we imagine it resting on a very slippery surface (ice, for example).
2. The glider advances towards the chocolate grinder, and this displacement causes the blades to open and set in motion (probably) the axle and the rollers of the chocolate grinder; the wheel which is moved by the



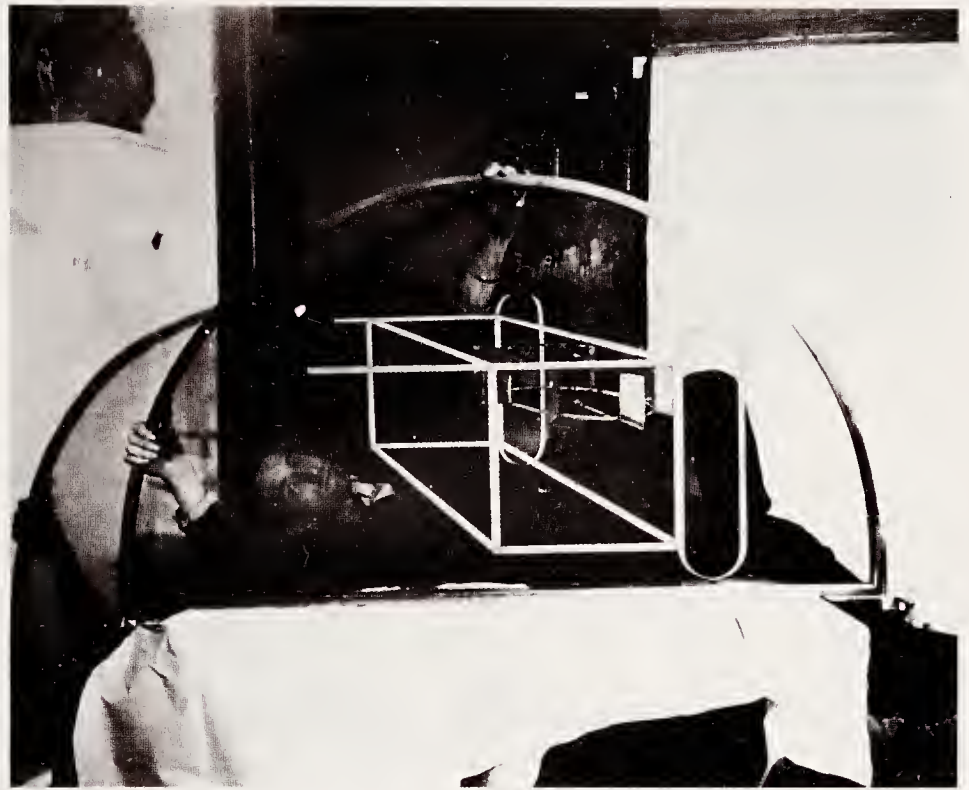
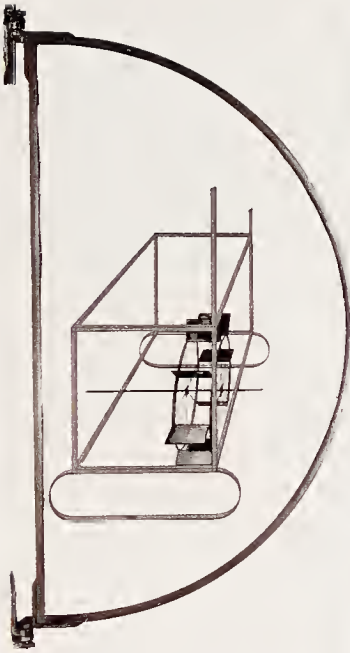
67. The *solipsistic machine* produces a series of movements and chemico-physical processes that are totally unrelated to the sphere of the bride: as the glider moves forwards, the scissors open and the chocolate grinder's teeth revolve while the wheel operated by the waterfall remains in the same place. A spring (invisible) sends the carriage back to its original position, and so on indefinitely.

waterfall remains in the same place as before (illus. 67). It is not impossible to combine this movement with those of the former hypothesis, in such a way that to see this gadget working would be an extremely hilarious experience.

In any case, it is a very plausible machine, a tremendous parody of eternal circular motion and of the senselessness of this masturbatory energy 'in a closed circuit' which is eternally dispersed and renewed. We can begin, therefore, by dismantling this *solipsistic machine* before we look at the processes of the *conjunctive apparatus* which will lead us to the space occupied by the bride.

THE GLIDER AND THE WATERFALL WHEEL

The *glider* (*chariot, traineau, glissière*) is a parallelepiped, probably with metal legs, of 'one centimetre cross section'³⁷ resting on two curved slides. Their position suggests that the whole structure should move from right to left, even though we have already said that there is a theoretical possibility of a vortex around the chocolate grinder. Inside the glider is the *mill wheel*,



DUCHAMP

68–70. *Glider Containing a Water Mill in Neighbouring Metals* (1913–15; Philadelphia Museum of Art) is a rehearsal for the corresponding part of the *Large Glass*. The photo of Duchamp, lying down at the back, suggests a masculine origin for the waterfall which moves the wheel. This work might also have been an anagram of the artist's signature, as is suggested by the written text which Ulf Linde believed he detected.

which is set in motion by the *waterfall*. Duchamp did not draw this because, as he himself stated, he did not wish to fall into the trap of 'painting landscapes'.³⁸ Duchamp referred to the waterfall in a footnote accompanied by a little diagram, saying that it comes 'from a long way off in a semicircle and lands on top of the malic moulds'.³⁹ That is to say that if the *Large Glass* were an illusionistic picture, we would see the water as it flowed from the depths, to the left of the bachelor machine, into the foreground. The blades of the wheel would move, as seen from the chocolate grinder, in an anti-clockwise direction.

A preliminary test for this part of the picture was undertaken in Paris between 1913 and 1915: it consists of a semi-circular, revolving glass panel hung on a wall by means of hinges (illus. 68–70). This orientation is very interesting: by means of simple manual pressure, we can effect the lateral movement of the glider that we were hypothesizing a short time ago, and in this case we are ourselves (figuratively speaking) the real chocolate grinder. The erotic significance of all this is emphasized in a curious photograph of Marcel, lying on a table, behind this *Glider Containing a Water Mill in Neighbouring Metals*: his genitals appear to coincide with the axle, as if he wanted to show us the source of the energy (the cascade) which

drives it, or the referent of the mill's repeated circularity (illus. 69).⁴⁰ There may also be a joke here concerning the artist's passion and the connection between his erotic energy and the expressive power of art (note that the semi-circle forms a 'D', as if the whole work were a gigantic signature).⁴¹ This is a very old theme, and Duchamp himself recognized it later on in a little satirical poem:

There was a painter named Copley
who never missed a good lay
and to make his painting erotic
instead of brushes, he simply used his prick.⁴²

By studying a few contemporary mechanical sources, one can put Duchamp's contribution into context. Wheels with rather rudimentary blades could be seen in virtually all of the rural mills of France,⁴³ but given the central theme of the *Large Glass* it seems more logical to make the connection with the ingenious hydraulics used in the production of electricity. Some of these wheels, like the Laxey wheel in England, were monuments exhibited with undisguised pride for the benefit of outsiders (illus. 71).⁴⁴ At the end of the nineteenth century, these old models with their flat blades ('a aubes planes') were being replaced by others with buckets (*augets*) especially designed to take the full force of the water-fall. Pelton or James Lefeld wheels were sold in every country in the world, and Duchamp could have seen them in industrial catalogues or working in some generating station. Advertisements showed these wheels mounted on *powerful*, immobile, more or less right-angled frames (illus. 72). Duchamp's sense of irony in showing his wheel on a slippery structure is revealed here in a manner which is as flagrant as it is eloquent.



GRAN RUEDA DE GRAVEDAD DE LAXEY,
ISLA DE MAN, INGLATERRA.

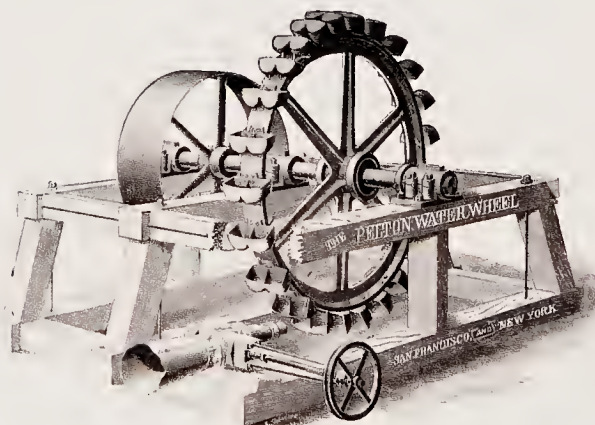
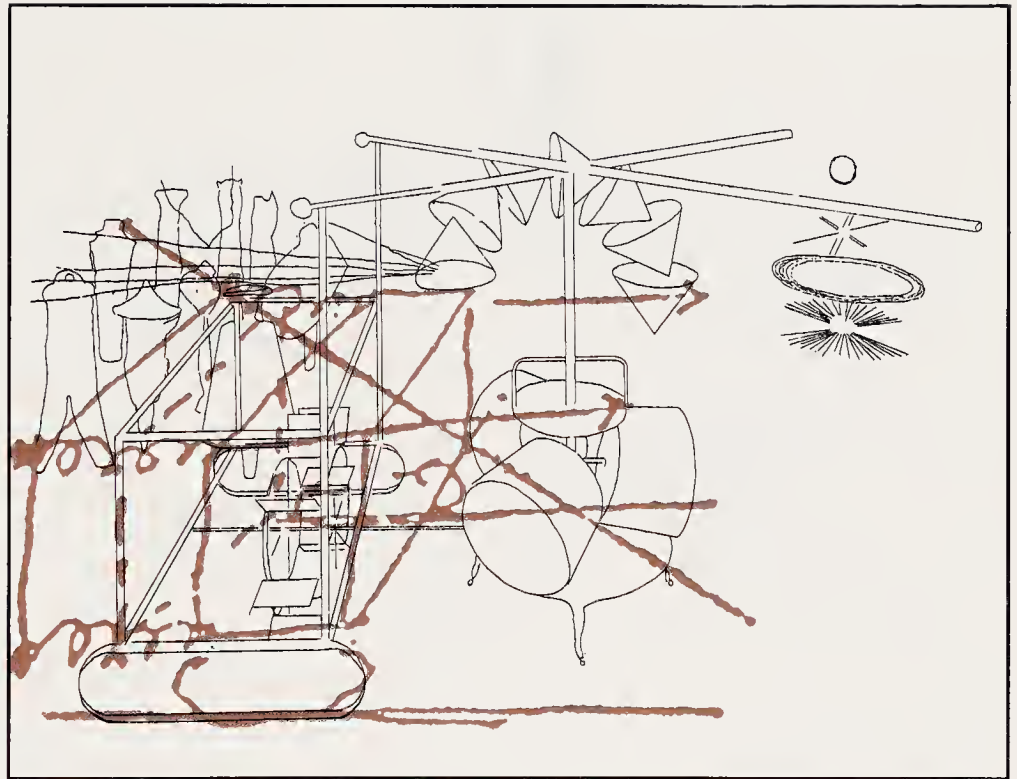


FIG. 2. RUEDA "PETTON" NORMAL MONTADA EN ARMADURA DE MADERA, SIN CUBIERTA.

71. The great Graveland hydraulic wheel on the island of Laxey, as it appeared in an industrial pamphlet, *The Pelton Hydraulic Wheel . . .* (1899).

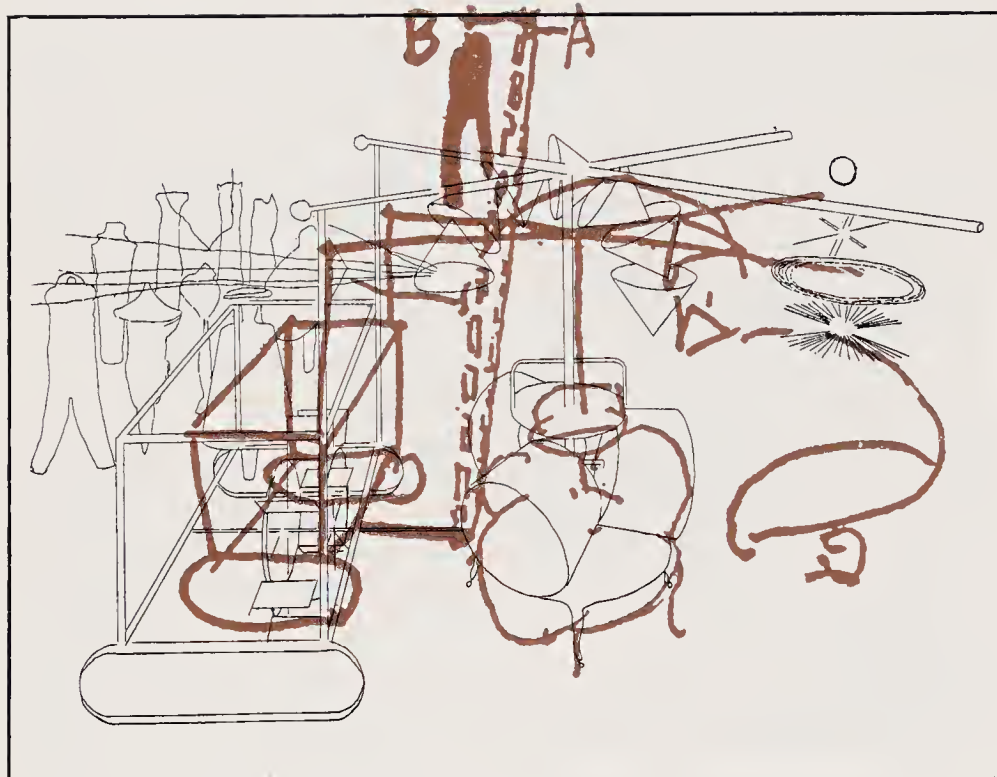
72. The 'Pelton' wheel mounted on a solid, fixed wooden frame shows, by contrast, Duchamp's sense of irony in dreaming up his fragile slippery glider.

73. Duchamp thought first of a carriage with four wheels (*Notes*, no. 85) and then adopted the idea to have a slippery glider, such as the one shown here in another diagram of the *Green Box*.



It often happened that such contraptions were shown in conjunction with solemn-looking male figures who seemed to be making the wheels move by means of some secret power.⁴⁵ It is not beyond the bounds of possibility that Duchamp may have reinterpreted the technical catalogues ambiguously when he decided to show the nine masculine moulds ‘floating’ over the glider and wheel.⁴⁶

The technical coherence of this part of the *Large Glass* was greater in the original speculations. Duchamp first thought of a cart with four wheels, although this idea had to be abandoned straightaway (illus. 73).⁴⁷ Then, he imagined that the structure would slide from right to left (and vice versa) in alternating movement. The operation was to be carried out through the action of a ‘fork’ or ‘clamp’ which, attached to an endless chain, would go underground through two holes and actuate the movement of the glider (illus. 74, 75);⁴⁸ this would make the glider ‘advance towards the chocolate grinder and at the same time [would open] the scissors’.⁴⁹ The operation is clearer in other notes and drawings in which the mysterious clamp is replaced by a bottle of Benedictine that falls from time to time on to a kind of lever. When it is tied to the glider by a string, it pulls it forwards; a few springs, situated to the rear, return it



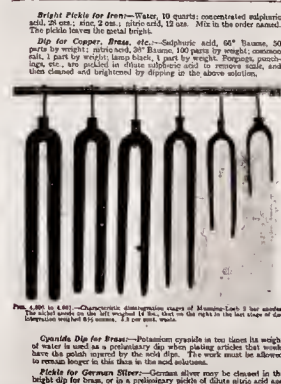
74. The weight of the 'clamp', attached to an endless chain, would fall on to a platform connected to the glider and thus cause it to move forwards. This diagram of the *Green Box* has been superimposed here on to the drawing of the entire lower panel.

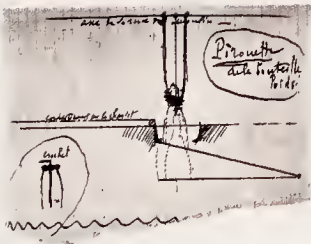
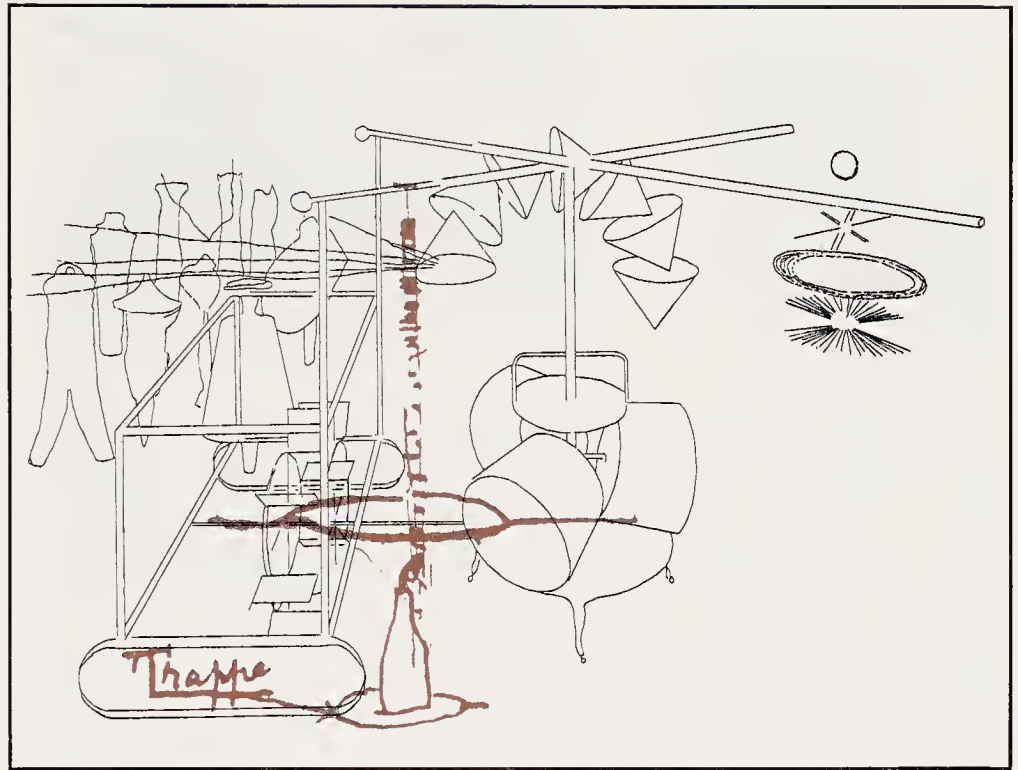
to its original position (illus. 76, 77). As for the bottle, Duchamp specified that it had to be a two-litre 'magnum' and added: 'a slight act of wickedness: an ironic concession to still-life paintings'.⁵⁰ He also played with the absurd when he thought that this alternating movement could be produced by means of 'bombs dropped by aviators'.⁵¹ It appears that in this case the glider would have glided over subterranean rails.⁵²

There is, then, an undoubted mechanical logic: the water from the cascade moves the wheel whose axle activates the endless chain (to be situated between the glider and the chocolate grinder); on to it is attached something heavy (clamp or bottle) which, when it falls on a kind of handle, pulls the glider towards the right (illus. 77); the mill wheel *does not alter position*, as it is the rectangular structure which glides above the axle (illus. 67). The scissors are forced to open when the glider advances, since their blades are guided by a kind of pin in the upper part of the vertical front legs.

Let us now imagine a continuous, monotonously repetitive operation. The glider with its eternal to-ing and fro-ing produces sounds like 'litanies' which Duchamp enumerated like funeral words or phrases: 'Slow life/vicious circle/onanism/horizontal/the limit of life/solitary

75. The strange shape of the 'clamp' might have been inspired by the metal anodes used in the process of electrolysis. The illustration shows the gradual disintegration of a fourteen-pound bar of platinum (from *Hawkings Electrical Guide*).



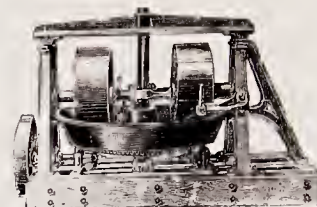
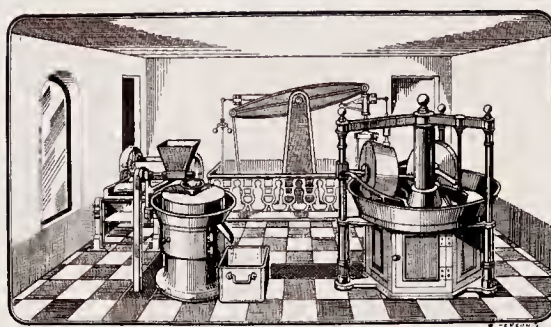
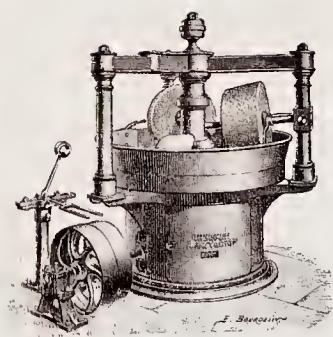


76, 77. An alternative weight to move the glider forwards: a bottle of Benedictine (diagram from the *Green Box* superimposed on the lower panel of the *Large Glass* and Note 87).

life considered as a leap beyond the limit . . .⁵³ There is no destination, then, for this wasted energy, which consumes itself. Here, we are faced with a masturbatory metaphor considered as something peculiar to the 'bachelor' condition. Although what happens finally with the *Large Glass* is a simplification of this complex mechanism, its essential significance is preserved. Duchamp did not know in 1952 if the superimposed clamp was 'indispensable for the theoretical progress of events', but he was very clear about the axle resting on the chocolate grinder without 'either acting in any way on the other'.⁵⁴ It is obvious that all this was, for him, always an articulated mechanism and that the relationship between the components could not be considered arbitrarily.

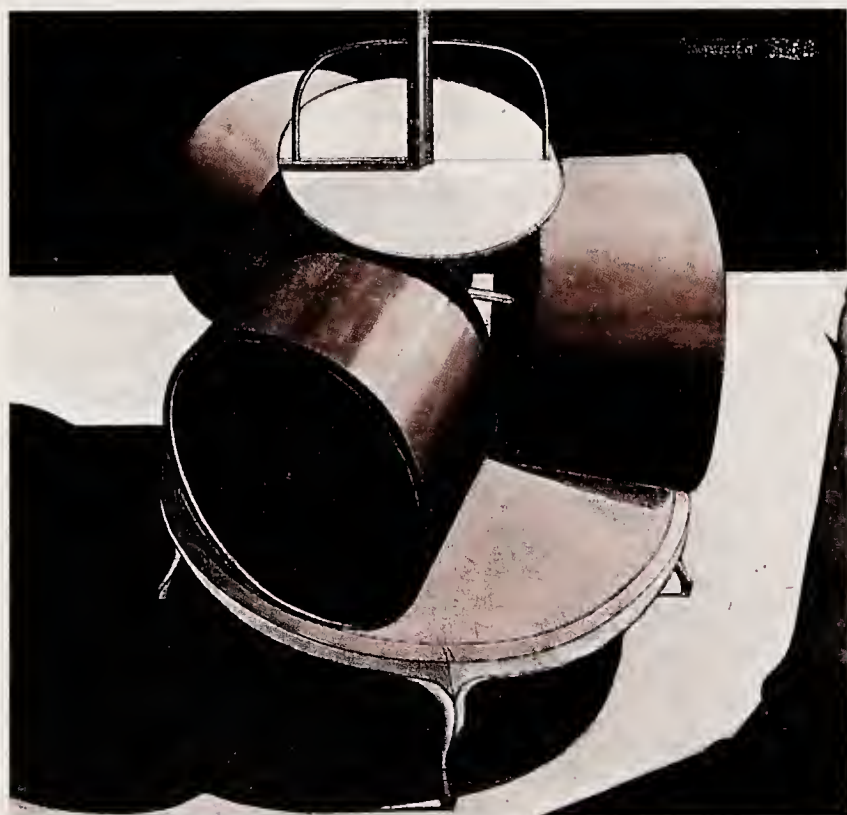
THE CHOCOLATE GRINDER

The first ideas for the *chocolate grinder* appear to have developed independently of the pictures which relate to the bride. As a young man, Duchamp saw an authentic grinder operated by this type of action in a shop window in Rouen; '... the sight of it fascinated me so much,' he said



to Sweeney, 'that I took this machine as my starting point.'⁵⁵ In fact, he did not make an exact copy of any specific grinder, but re-created, rather freely, the main elements which could be seen in these machines. The earlier models shown by Jean Clair and Ulf Linde have two rollers in the form of truncated cones and a base with a rather industrial appearance (illus. 78–9).⁵⁶ The grinder's resemblance to a cement mixer is considerable, as is evident from an examination of industrial catalogues of the time (illus. 80).⁵⁷ Duchamp made two pictorial versions of this element before transposing them to the glass: while the first one (1913) is a conventional oil painting (illus. 81), the second (1914) contains outlines delineated by

78–80. This is what chocolate grinders were like in Duchamp's youth: illus. 78 is from catalogue of Savy & Co. (1900) and was published by Jean Clair in 1975; illus. 79 is a reconstruction of a chocolate factory (according to Ulf Linde). These grinders were similar to cement mixers, as can be seen from a comparison with the examples shown in the Walter Newbold catalogue (1891).



81. *Chocolate Grinder No. 1* (1913) oil on canvas, Philadelphia Museum of Art.

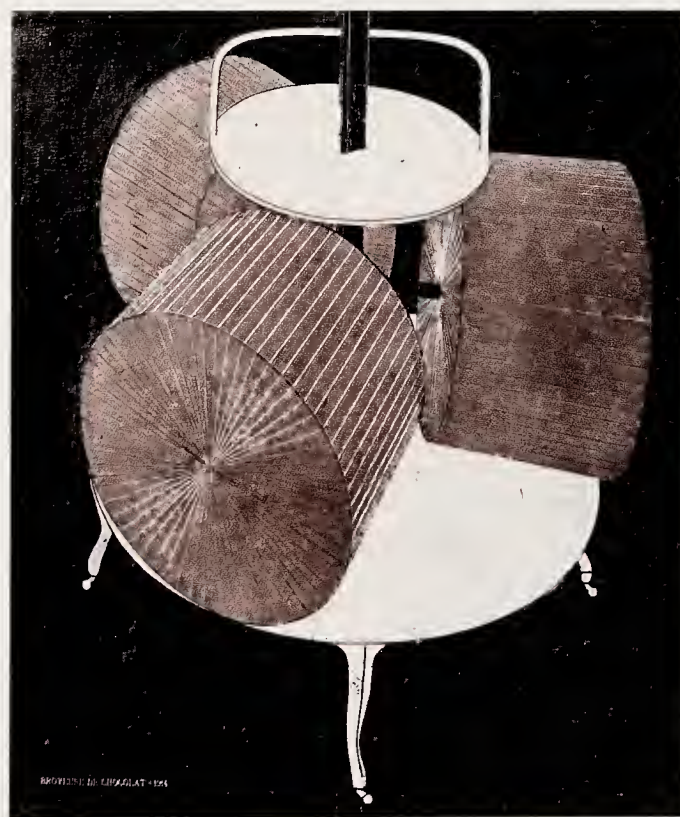
threads which create a feeling of absolute precision (illus. 82). The *Large Glass*, we must not forget, was made by sticking wires and layers of lead on to the surface of the glass and filling in the gaps with paint or other materials.

Duchamp's interpretation of the *grinder* is rather odd: the point of observation is high up, as in the perspective technique normally employed in industrial drawing. There is no bucket, so that the hypothetical milled chocolate will be deposited inexorably on the ground; the grinder has three rollers in the form of truncated cones instead of the two which are usually found, as we have seen, on actual grinders; the base consists of a small table with Louis XV feet, each supported on its own little wheel with a revolving rod, similar to the chairs found in many offices (illus. 83); above is a kind of circular platform (the 'necktie') and a vertical pole (bayonet) on which rest blades or scissors.

The erotic significance of this machine cannot be denied. Duchamp had the idea of including 'for the sake of publicity, on the page of text [of the catalogue or booklet of the *Large Glass*] which might describe the grinder' the following inscription: *The bachelor grinds his own chocolate*.⁵⁸ Other notes are even more precise: 'The chocolate from the rollers,

82. *Chocolate Grinder No. 2* (1914; Philadelphia Museum of Art), with the incorporation of typographic texts and straight pieces of thread stuck to the material.

83. 'Louis XV' foot for the base of the chocolate grinder. Compare this with the object which appeared in the stage version of *Impressions d'Afrique* (illus. 56).



coming from who knows where, is converted into milk chocolate after the grinding.’⁵⁹ And if all this were not explicit enough: ‘... the useless thing about grinding chocolate has to be the brushing of invisible stains which the bachelor keeps hidden.’⁶⁰ Later, when Duchamp was asked about all of this, he replied:

In my life, there has always been a need for, you might say, rotating circles. It is a kind of narcissism, of self-sufficiency, a kind of onanism. The machine revolves, and by means of a miraculous process which I have always found fascinating, chocolate is produced.⁶¹

This notion takes us back, as we have seen, to the *Bicycle Wheel* and can be associated with the drawing *Avoir l'apprenti dans le soleil* (illus. 13), included in the *Box of 1914*. Some have said that this is an evocation of the *Spéculations* of Alfred Jarry: ‘Of passion considered as an uphill run’.⁶² It may be useful to remember that in these years, according to Beatrice Wood, the window ledge in Duchamp’s studio was crowded with bowls of dried fruit and Swiss chocolate, which constituted his habitual diet.⁶³

What Duchamp did not clarify is the source of the energy which moves the rollers, nor the mechanical relationship between all of this and the glider and wheel operated by the waterfall.⁶⁴ Or perhaps such an explanation is unnecessary? Indeed, let us make our technical imaginations work in a manner different from the way in which we used them when we began to talk about the *solipsistic machine*, and let us suppose that the movement of the blades, opening and closing periodically, is transmitted, by means of a gear system hidden in the base of the vertical pole, to the three springs shaped like truncated cones; if this were the case, each one of them would move a segment of the circle over the table and then bring it back to its original position (illus. 67). The chocolate would be crushed, certainly, but it is not clear that such an action would be brought about by a complete rotation of the rollers. I am not saying that this machine has to function in the same way as those used in the industrial world, but I want to call your attention to the internal logic of Duchamp’s artefacts, which are very different, as we have seen, from those envisaged in the pseudo-mechanical (exclusively poetical) images of Picabia and the other Dadaists.

THE SCISSORS AND *BURIDAN'S DONKEY*

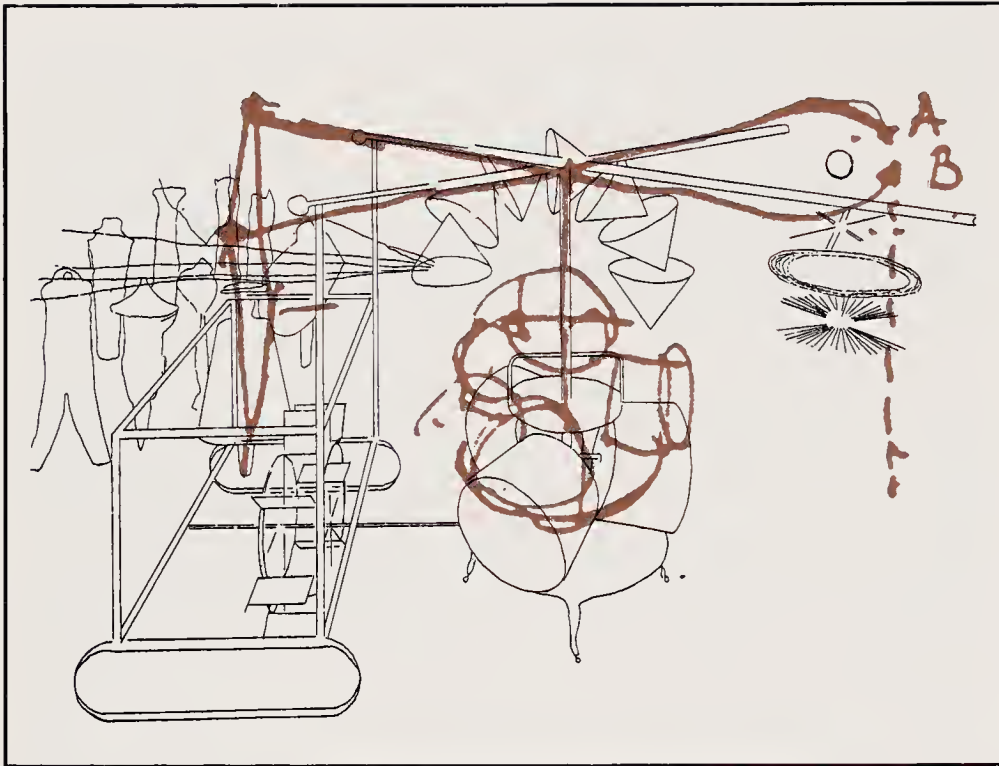
If we turn to the *scissors*, it would appear that Duchamp had flirted previously with some fanciful ideas. Before deciding to depict them in their final form, with their alternating movement, he imagined them as being capable of raising and lowering 'the horizontal column following its contact with the *precision wiper*'. On the back of the same note, he wrote: 'Movement of the scissors: opening with movement from above to below, alternately. Determine the curve of this double movement: not now.'⁶⁵ I believe that this was another masturbatory metaphor, a completely superfluous one, but as it did not seem easy to attribute minimal mechanical verisimilitude to the scissors' horizontal and vertical movement, the artist adopted the solution which we have observed in the glass. Bearing the context in mind, and given that (as we shall see in a moment) the malic moulds refer to glass factories, there is nothing special about the fact that inspiration for the scissors also came from the world of industry. Advertisements by Ercole Marelli for ventilators for glassworks, for example, depict a suffocating masculine world ventilated by gigantic fans, each with four blades, suspended overhead (illus. 84).⁶⁶ Let us not forget that the scissors in the *Large Glass* are also fan blades. As almost always happens, it is not a question of recognizing direct copies but of suggesting the metaphorical evocation of the 'celibate' world, and of imagining subtle transpositions of components which end up being converted into the parts of a completely original artistic entity.

In addition, it seems that Duchamp fantasized about the possibility of the scissors assuming some role in the complex processes of the *conjunctive apparatus*: in one place, they 'cut' the gas emanating from the splash, which

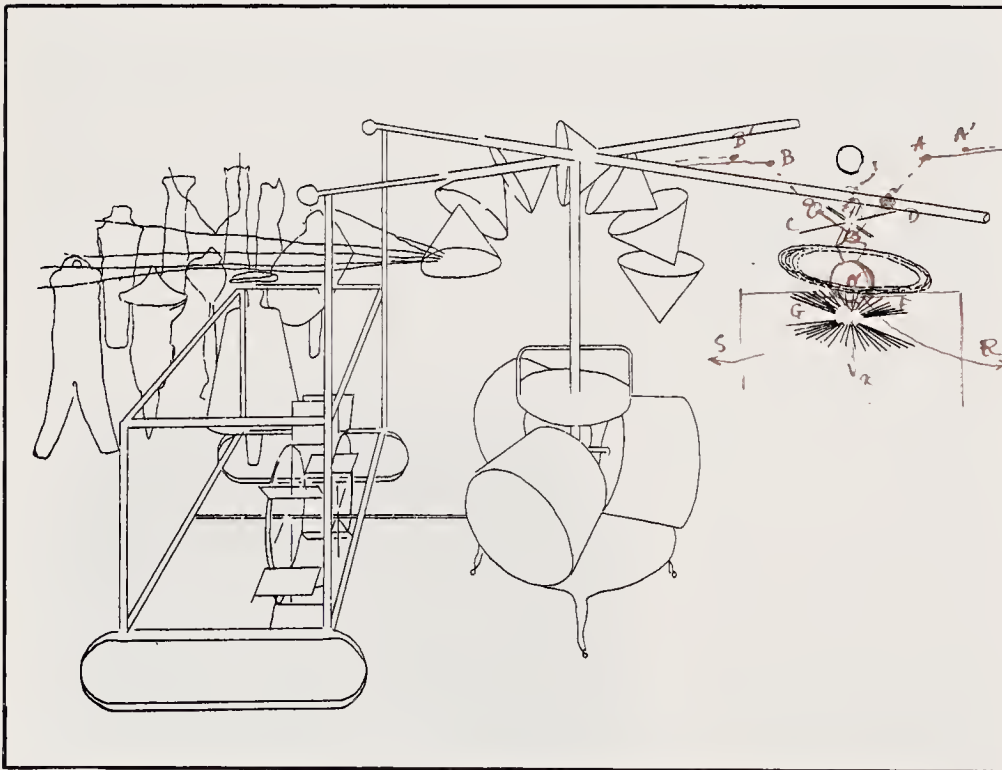
La Ventilation dans les Verreries

84. Great fans suspended over the masculine world of the glass factory. From the Ercole Marelli catalogue (1908?).





85, 86. Diagram of the scissors, the chocolate grinder and the fall of the weight. *Buridan's Donkey* was an attempt to put the idea into practice, but it never got beyond the embryonic stage. A kind of grenade, released when the scissors opened, would have fallen on to the splash, making it explode, or on to a platform similar to the one associated with the bottle of Benedictine (*Notes*, nos 119, 153).



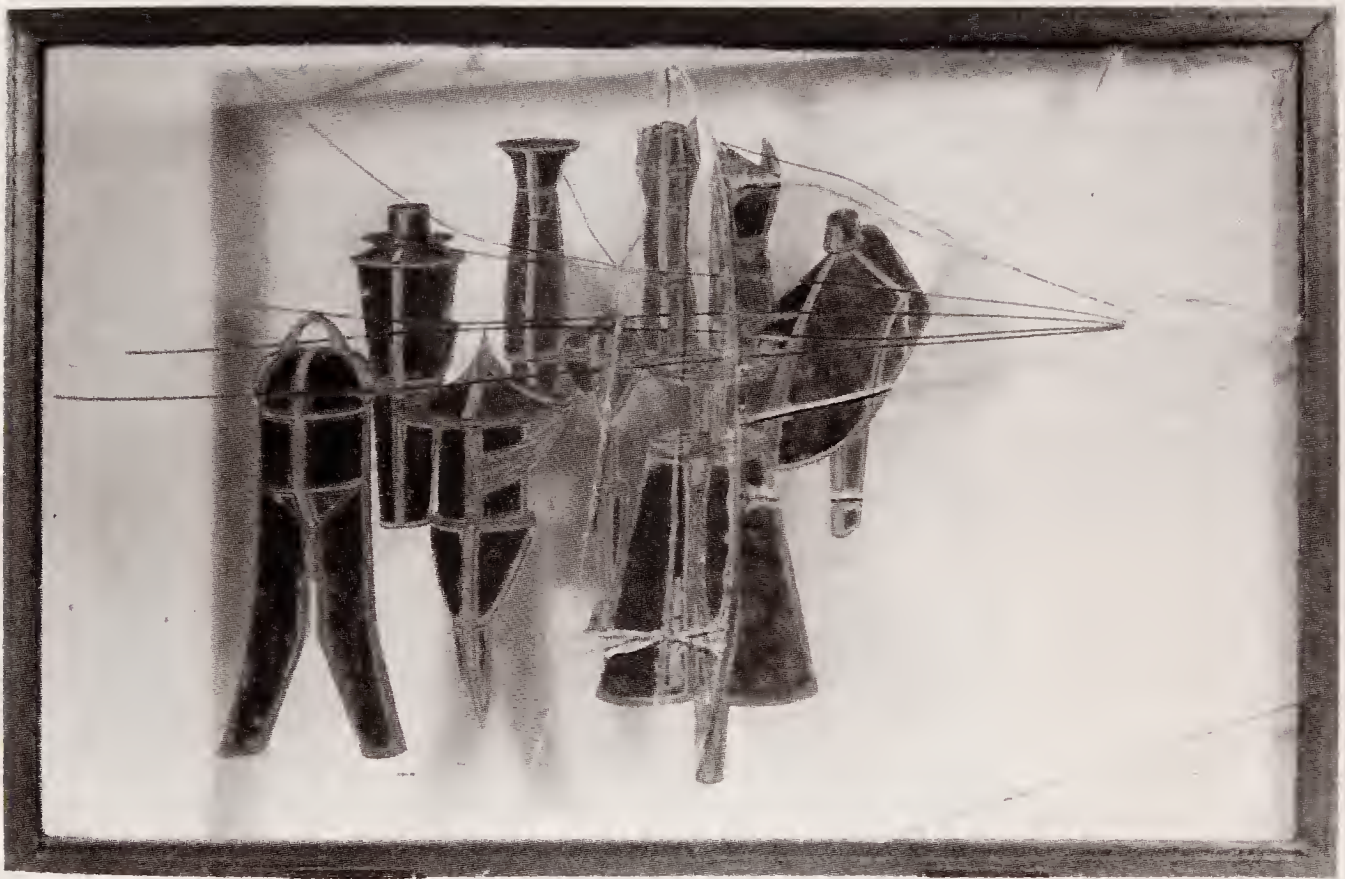
is rather improbable, considering the spatial disposition of component parts; another idea was to connect a heavy moving object, such as a grenade, to their extremities which would fall, when the scissors opened, towards the lower part of the splash (illus. 85, 86). This is what Duchamp called *Buridan's Donkey*, and he was adamant about the necessity of 'developing' the idea further.⁶⁷ But it seems significant to me that the notes which mention it do not appear in the *Green Box*. I believe, therefore, that this primitive and barely elaborated project was abandoned a long time before the chemical metaphors of the bachelor mechanism were replaced, after 1918 (as we shall see), by optical devices.⁶⁸

THE MALIC MOULDS

The whole of the interior (glider, wheel, invisible cascade, chocolate grinder and scissors) constitutes, as we have said, a kind of independent machine, lacking contact with the energy circuit which is projected on to the bridal panel. Only the blades of the scissors will interrupt the flow of the gas (or whatever) as it ascends from the splash, but this is an insignificant and rather doubtful role, as we have seen, in the functioning of the *other* bachelor mechanism, situated behind the one we have described and in contact with the bride. Let us see in greater detail why we have called it a *conjunctive apparatus* (illus. 66).

The beginning of the apparatus is situated at the left, behind the glider, the location of what Duchamp called 'the matrix of love'. These are the nine *malic moulds* which seem to float in the weightlessness of the glass, but which actually occupy a specific territory in the illusory space created by mathematical perspective. Duchamp said that they were '*Uniforms of the Gendarme, the Cuirassier, the Policeman, the Priest, the Station-master. Liveries of the Bellboy, the Deliveryman from the department store, the Servant, the Gravedigger*' (illus. 87).⁶⁹ There is no doubt about his anthropomorphic implications, to which Michel Leiris alluded when he mentioned the strange anonymity of men in uniform and their similarity to chessmen.⁷⁰ But the definition of these moulds did not occur suddenly, and its final form and function in the structure of the 'bachelor machine' are the results of a surprising evolution.

The first germ of this idea occurs in a note in the *Green Box*, dated 1912, where the outline of a rather enigmatic project is described: 'The machine has five hearts, the innocent child, made of nickel and platinum,



will have to dominate the Jura-to-Paris highway.⁷¹ Duchamp dreamed up this work after the famous car journey in the company of Picabia and Apollinaire; the mechanical suggestions of the event will have figured in the picture which described, by all accounts, several metal hearts and a kind of 'embolism'.⁷² This concept may have become confused with certain popular suggestions, since Duchamp revealed to Jean Schuster a curious initial source: '... the fairground stalls of those days gave me the idea of the bride. Those spectacles frequently involved dolls representing people at a wedding. Observers hurled balls at them, and, if they aimed well, knocked their heads off and won a prize.'⁷³ Although throwing balls can be associated, as we shall see, with other parts of the *Large Glass* (like the *boxing match*, the *gunshots* or the *gravity controller*), we must not forget that the malic moulds appear to be inscrutable dolls which have been 'decapitated'.⁷⁴

When such ideas eventually became (con)fused and culminated in the concept of the 'male' moulds (*malics*), the hypothesis burst forth that these might generate a gas with a more or less tautological destination, none

87. The little glass picture *Nine Malic Moulds* (1914-15) was reproduced subsequently in the *Large Glass* with considerable accuracy.



88. The body is absent while showing the parts of men's clothing, from a Sears Roebuck catalogue ([1908], p. 1055).

89. Rough sketch of the ninth malic mould; it is obviously a dummy.

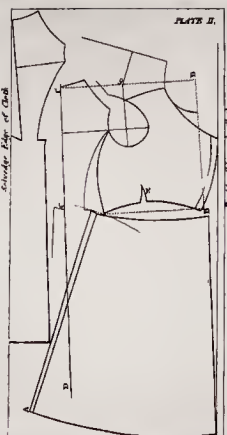
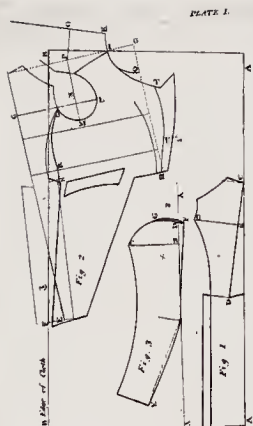


the less close to the masturbatory processes which we observed in the *solipsistic machine*. Note 103 reads:

Moulded from the gas in the matrices of love: malic forms. Gas moulded into malic forms, but these malic forms have no sense. Like the refrain of the whole bachelor machine. (Limit of life, sexually embarrassing situation). Do these forms have no *certainty*? They have negative cravings. The torments of Tantalus . . . They attempt to answer all of the questions about love through iridescent brutality. A mirror wrapping them up all along its inaccessible question: reflecting its own complexity and exciting them rather onanistically.⁷⁵

In the final mechanism, there are five moulds (not eight as in some preliminary plans), and its character is 'conjunctive' (or copulative), whereas the gas, gathered in the capillary tubes, is raised, after many ups and downs, to the upper part of the *Large Glass*.

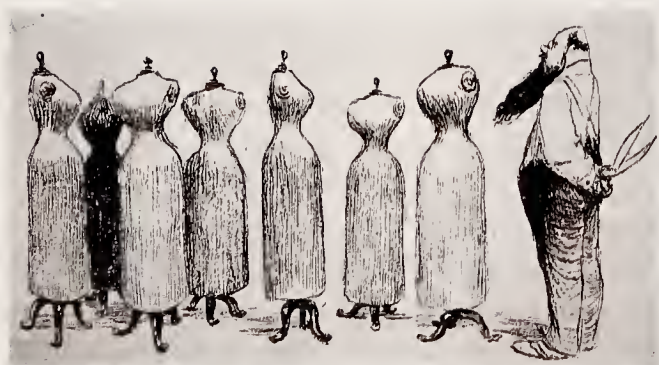
But what are these elements in reality? From where does the inspiration of form and function spring? As Duchamp spoke of uniforms and liveries,⁷⁶ his hollow structures have been compared with the men's suits on special offer by Armes et Cycles de Saint Etienne;⁷⁷ they were similar to others in sales catalogues such as Sears Roebuck's (illus. 88). It seems to have been a convention of the age to display clothes 'inflated', as if they contained invisible bodies.⁷⁸ It is not impossible, then, that this source was of some importance, just as, in my opinion, we cannot ignore other images which displayed the human body 'in cross section' to facilitate the taking of measurements and ordering of clothes in the right size by post.⁷⁹ But there are other considerations which reinforce the connections between these figures and the world of tailoring: the ninth malic mould is the 'Chef de gare' (station-master), and we know for certain that it is 'the scrupulous transposition of a sewing pattern'.⁸⁰ Duchamp's sketch even shows the tripod which keeps it erect on the floor (illus. 89).⁸¹ Dated 1913-14, it was dedicated to Hartley in 1936. As if that were not enough, we have come across, in an old sewing instruction book, illustrations which might well have served as design inspirations for the Cuirassier and the Gravedigger (illus. 90, 91).⁸² Nor was there a shortage of caricatures alluding to a connection between tailoring and eroticism (illus. 92). Ulf Linde, relying on the fact that Duchamp had written that '... the nine malic uniforms are elliptical,'⁸³ demonstrated graphically and fairly convincingly that the axes parallel to the glass of these figures have a cross-section which is twice as wide as that of the perpendiculars (illus. 93, 94).⁸⁴ Is this not the approximate shape of tailors' dummies? The



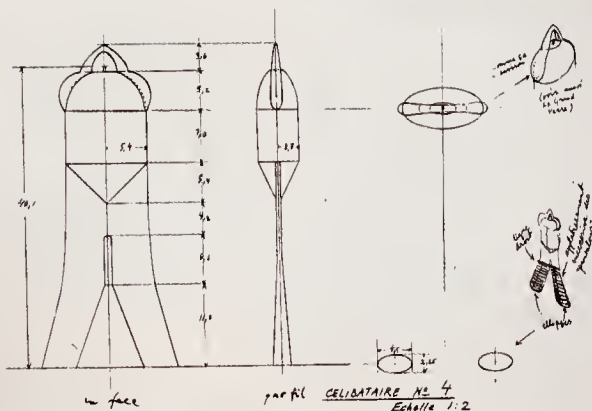
90, 91. Old dress patterns provided inspiration for some features of the malic moulds. Compare these 1822 sheets by J. Wyatt with the two frontal figures (left and right), which represent the Cuirassier and Gravedigger.

exception to the rule is the Policeman, but it seems clear that we are talking here about a tailor's dummy (for making the shoulder straps) placed at a right-angle to the glass (illus. 95).

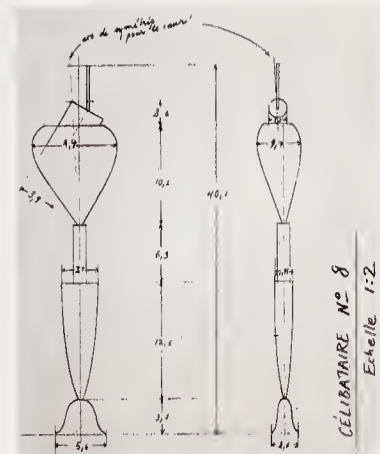
So, Duchamp stated specifically that the latter were 'des moules' (moulds).⁸⁵ If we take him literally, we will be astonished to see that he copied the external appearance of the moulds used in the manufacture of glass objects quite closely. At the beginning of the twentieth century, nearly all glass objects were manufactured by placing a ball of molten glass into a metal mould (normally of a reddish-brown colour); the workman, blowing downwards through a long tube, made the glass stick to the interior walls and thus acquire the mould's shape (illus. 96, 97).⁸⁶ This technique has not changed much since then, and it is still possible throughout the world to find artisans' factories with an abundance of moulds of vaguely anthropomorphic shapes very similar to those seen in the *Large Glass*. After all, the whole of Duchamp's work is a 'tour de force' of glass, and there is nothing strange about the fact that the interior material of the moulds should provide support for his imagination as



92. There are erotic implications for a collection of tailors' dummies in this caricature entitled 'Bluebeard' and published in *Le Rire* (1897). Duchamp, with his *malic moulds*, would have inverted the sex of these 'decapitated' entities.



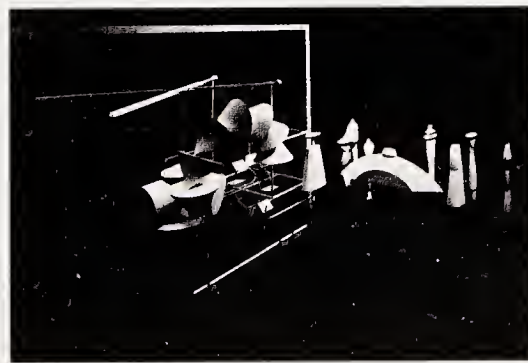
93, 94. The *malic* moulds are 'elliptical'. Drawings of the Cuirassier and Bellboy made by Ulf Linde, who also entitled the last figure 'heart'.

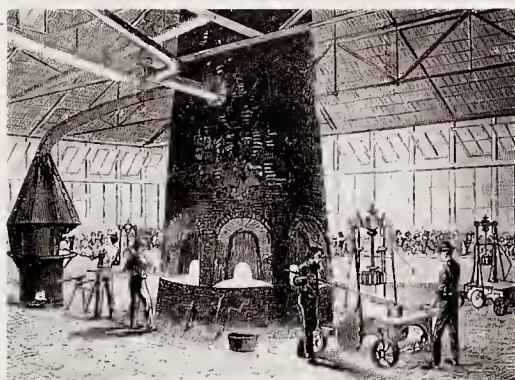


happens here in reality. Another evocation of the vitreous connection with the moulds is in the mirror, already mentioned, 'which will have reflected their true complexity'. It should be noted once more that this is the peculiarly masculine world of the glassworks of old, with workers putting up with extremely high temperatures as well as sordid living conditions. It seems that the quality of some objects improved when the glass-blower's breath contained a certain amount of alcohol, so the proprietors were in the habit of distributing free brandy and keeping the workers in a permanent state of inebriation.⁸⁷ In such conditions, it is not difficult to imagine what the 'sexual ambience' would have been like.

But a gas is produced or formed in the moulds. Duchamp said: '... the bride has a centre-life, bachelors don't. They live thanks to coal or other raw material obtained not from their being but from their non-being.'⁸⁸ A few notes (not included in the *Green Box*) relating to the first, discarded plans speak about the 'crushers', the 'great receiver', the 'collectors' and a 'mixing bottle' (illus. 65).⁸⁹ It is clear that the *malic* moulds were conceived as a kind of retort with a function similar to those used for

95. The Policeman is a tailors' dummy (the upper part of the shoulders), as one can see in this lateral view of the mock-up of the *Large Glass*.





96. Glass factory, from the *Historical Register* of the 1876 Philadelphia Exhibition.



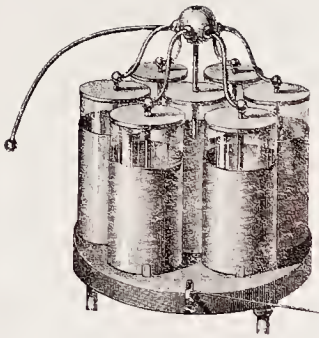
97. 'Hollow' mould for a glass object, from an illustration in an instruction manual on the manufacture of glass.

obtaining the gas for gaslights. The process, widely known at the time, is summed up in the following manner in a little schoolbook which Marcel himself may have read as a child: 'By heating the coal in big iron tubs, gas is obtained for lighting. The gas is collected in enormous containers, called gasometers; then it is directed to houses by means of narrow pipes.'⁹⁰ The industrial practice was, obviously, more complex and necessitated the grinding of coal, treatment of the gas in different containers, etc. (illus. 98).⁹¹ The similarity of these processes with what was described in the notes is so great that there is hardly any doubt about which industrial activity acted as a source of inspiration for Duchamp when he conceived this part of the *Large Glass*.

But there is more. The matrix of love is not just a 'cemetery of uniforms and liveries' (the suits would be enclosed in a mould just as bodies are in coffins), but a multifaceted invention within which ideas from different sectors of scientific and industrial activity are fused. We have seen that each mould is also a retort and that the gas which they produce unites with the gas from the others by means of a convergence

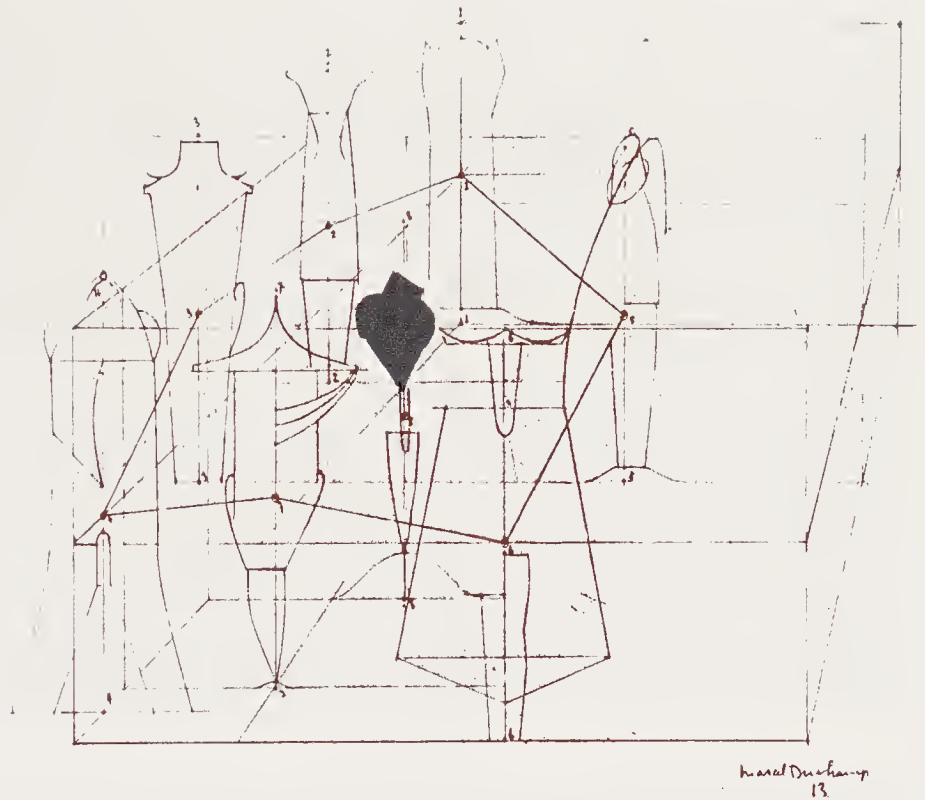


98. Obtaining gas for lighting by heating coal in metal retorts, from *Tableau de Paris* de E. Texier (1852?).



99, 100. Electric batteries joined together (Leyden bottles) in a physics manual from the end of the nineteenth century. Several neutral units of energy grouped together could have been what Duchamp had in mind when he came up with the idea for an organism of malic moulds having a central 'heart', i.e., the Bellboy. We have filled in this figure on the 1913 drawing to show its position in the centre of the polygon of sexuality.

101. Nine giratory motors and a sawn-off propeller from an aeroplane (1911?; Museum of Flying, Santa Monica, California).



of capillary tubes at the base of the first sieve. Does this not recall Leyden bottles or Bunsen's electric batteries, all connected at the top with the aim of increasing their combined energy (illus. 99, 100)? These nine entities do not act as differentiated individuals, but, like the cylinders of an engine, combine their energy or output, which is then processed and directed in unison towards the feminine universe. One would say that all of them constitute a single body, with its own *heart* at the centre: the very elegant figure of the bellboy ('Chasseur de café'), an obvious survival of the 'innocent boy made of nickel and platinum' (or 'headlamp boy') and of the 'machine with five hearts' mentioned in the note written in 1912 (illus. 100).⁹² Given this primitive idea, one remembers the fascination with the rotary motors of aircraft, positioned in a circle around the propellers. These were a French invention which must have been much in evidence at the famous Salon de la Locomotion Aérienne of 1912, which Duchamp visited (illus. 101).⁹³

We must insist on the impersonality of these masculine entities. When they are decapitated, they have no faces and their only area of

coincidence is in the (horizontal) genital plane.⁹⁴ It is a curious transposition of the centre of interest from the absent head to the genitals. Duchamp, incidentally, employed this idea in his own furniture, judging by what he said to Roché during the febrile years of his work on glass: 'I have a bed with a round hole in the centre for my head.'⁹⁵ This is like saying that there is no difference between cerebral and sexual energy: bachelors, under the influence of the gravitational pull of the bride, are reduced to making, like battery cells, a comparable amorous substance, which can be channelled and reused at its destination, like the gas used for lighting, or like electricity itself.

Let us sum up. The malic moulds constitute a good deposit of different ideas supporting each other that bestows great metaphorical complexity on this part of the *Large Glass*. It appears that the different designations adopted by Duchamp allude to many other iconographic references at the same time that they explain the technical and mechanical sources which gave him the ideas. The table below is an attempt to bring all of this together. We have added a hypothetical chronology which shows the approximate times when the various meanings and terms came together.

APPROX. DATE	DUCHAMP'S TERM	MECHANICAL AND/OR ICONOGRAPHICAL REFERENCE	SEMANTIC CONNOTATIONS
1912	Headlamp boy (of nickel and platinum). Machine with 5 hearts.	Bunsen batteries. Combustion engine with several cylinders. Aircraft rotary motors.	Malic moulds as 'solid organism whose parts are connected by a heart' (Bellboy).
c. 1913	Malic moulds. 'Matrix of love'.	Moulds for the manufacture of glass.	Decapitated figures (impersonality) and holes, mass-produced. Tautological reference to the glass and the reflection in the mirror ('onanistic').
c. 1913	'Matrix of love'.	Retorts for the production of gas.	Joint production of erotic masculine energy which will be gathered in capillary tubes.
c. 1913 Idea developed after 1915 when he introduces the ninth malic moul.	Cemetery of uniforms and liveries.	Mannequins and tailors' dummies. Hollow suits. Coffins.	Uniformed archetypes of the 'masculine' condition (impersonality).

Table 4. Elements and significance of the malic moulds.

THE CAPILLARY TUBES

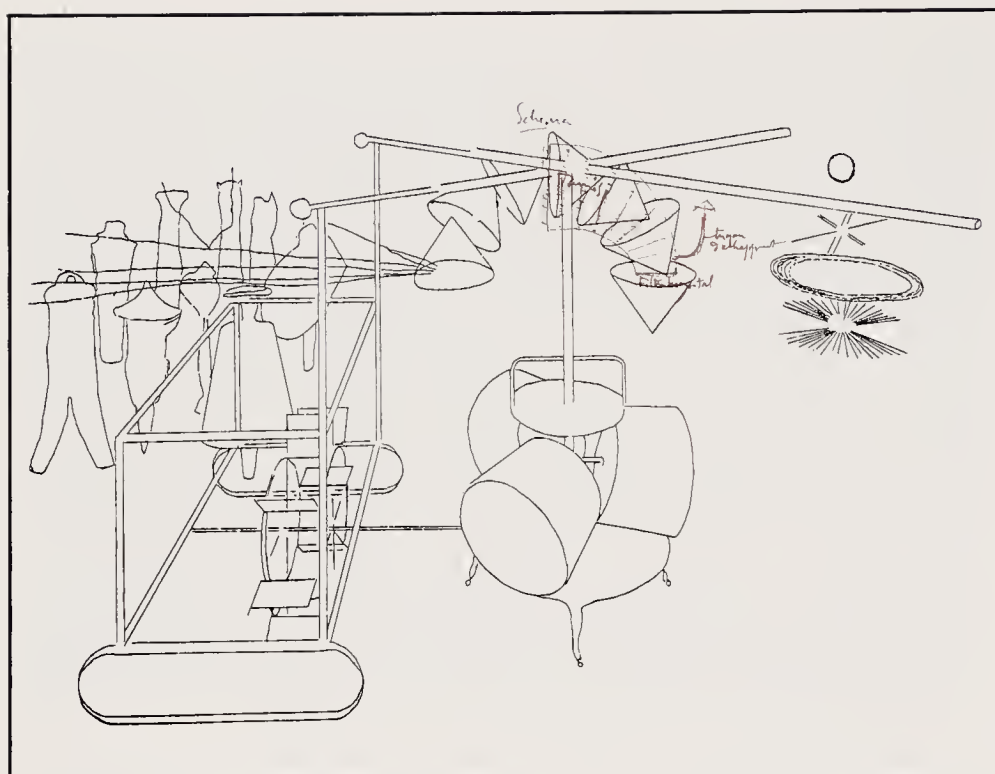
The *capillary tubes* are described in Note 114 as if they were conductors of the gas from the 'great receiver' to the 'second semi-collector' and the 'mixing bottle' (illus. 65). Duchamp seems to have changed his mind about this when he decided that each malic mould should be finished off with three capillary tubes (there were to be 24 in total, since he still had not included the ninth mould). His mission was to 'cut the gas up into pieces which would then look like 24 solid fine needles'; these would be converted, when they recombined in the two semi-siphons, into 'a mist of a thousand little layers of frozen gas'. All this, Duchamp added later in the same note, 'is for the phenomenon of elongation of the unit of length'.⁹⁶ The mechanism he had in mind, then, was more logical than might appear at first glance:

When the two semi-siphons have filled up with the layers of mist, which are lighter than air, the operation of liquefaction of the gas will commence through the sieves and the horizontal filter: each little layer of solid gas works out, in a kind of local derby of layers, how to dash across the holes in the sieve while being affected by the suction action of the pump.

102. A diagonal photograph of the oil painting *Network of Stoppages* (1914?; illus. 15), an experiment intended to make its transposition in perspective above the malic moulds easier.



Or it could be that the gas, coming out of the malic moulds, was to be transformed into what looked like needles,⁹⁷ brilliant and elongated, seemingly made of ice. On recombining in the two 'semi-siphons', they would have fragmented and formed mist or snow. This solid gas, absorbed by a pump, would have been converted into liquid as it passed through a sieve. However, we have already said that Duchamp added one more mould, and there is no sign in the *Large Glass* of the semi-siphons or the pump. Elsewhere, in place of the three tubes per mould, he decided to take advantage of the 'tinned chance' of his ready-made *Trois stoppages étalon* (illus. 14) by using the patterns to construct a network of filaments which connected the tops of all of the moulds so that the hypothetical



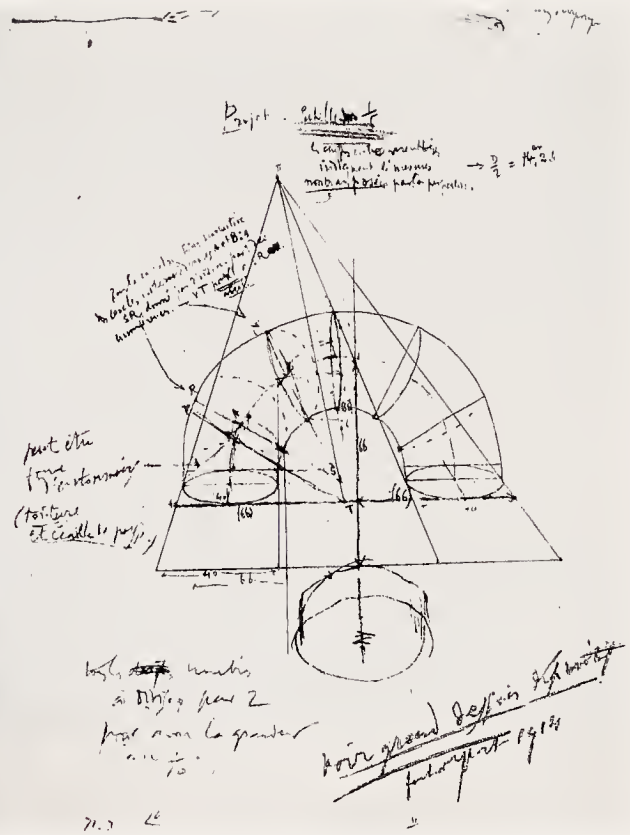
103. Flat sieves and escape tube (*Notes*, no. 114) in their probable position.

channelled energy flowed into the base of the first sieve. We have already spoken of the probable use of the three random rulers on the 1914 canvas (illus. 15), which might be considered as a diagrammatical layer of what appears in perspective in the glass (illus. 102).⁹⁸ With this final layout, the most likely result was that the gas produced in the moulds would have passed directly towards the sieves by way of the capillary tubes, although there is no reason why we should not think that the processes would be preserved (solid gas in the tubes and then frozen mist in the base of the first sieve) despite the changes introduced into the mechanism.

THE SIEVES

The *sieves* also underwent transformations. An initial idea did reach a further stage of development: five sieves placed in a circular segment of 45 degrees would have caused the gas to undergo a process of purification as it passed through each one of them before it reached the butter churn; an escape tube would have permitted the evacuation of the useless matter 'which did nothing except serve as a vehicle for the gas'. The

104. A preliminary drawing
for the sieves (1914)
published in the *Green Box*.



sieves would have had numerous holes in them, the size of which would have become smaller as the gas got closer to the end of the trajectory (illus. 103).⁹⁹ While all of this was taking shape, it occurred to Duchamp to make six permeable little shadows and group them together in such a way that the axle would form a perfect semi-circle: the gas would pass through all of them and in the course of its journey would first lose its sense of direction (its natural inclination was to raise itself up towards the top) and gradually acquire a common direction. Duchamp said that the little shadows were meant to direct the gas in such a way that ‘... there is of necessity a change of state in the little layers,’ which ‘can no longer retain their individuality and all come together after B [the last of the hemispheres]’.¹⁰⁰ The adventure of the gas in the interior of this ‘labyrinth of three directions’ is described in considerable detail:

... the little layers dissolve, crash into each other – that is, they change bit by bit as they cross over each of the sieves, [passing] from the state of being little layers lighter than air, of a certain length, of elemental thickness, with the sole idea of rising up, [until they are converted] into elemental liquid spreading everywhere, with no definite direction, towards the exit B, a vapour of inertia



105, 105a. The 1920 photograph by Man Ray *Elevage de poussière* shows a fragment of the *Large Glass* before the dust-covered surface around the sieves was completely cleaned. The four cones on the right are darker than the three on the left.

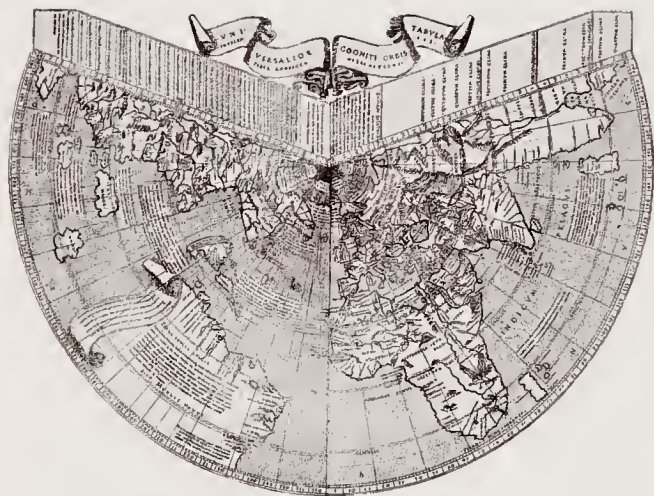
and snow, although it still preserves its liquid character through the instinct of cohesion.¹⁰¹

These processes were firmly retained in the final project, when the number of sieves rose to seven and they acquired a conical shape (illus. 104). Their interiors are unpainted, as Duchamp kept more or less faithfully to the note accompanying the *Green Box*: 'For the sieves, on the glass, dust should be allowed to settle here, dust of 3 or 4 months, and all around should be cleaned well so that the dust will acquire a certain colour (transparent pastel).'¹⁰² A very beautiful photograph taken by Man Ray before the glass had been cleaned bears witness to the fact that the *Large Glass* continued to generate collateral works (illus. 105, 105a).

It is also interesting to study the iconographic sources because they show how a functional aspect of secondary importance could result in important transformations in the machinery's appearance. 'The holes in the parasol sieves,' wrote Duchamp, 'must, like a *mappa mundi*, show the figure of the 8 malic moulds schematically proportioned by their 8 points (flat concave polygons) by subsidized symmetry'.¹⁰³ This idea persisted when the number of malic moulds was increased to nine and the number of sieves to seven.¹⁰⁴ This geometrical awareness immediately directs our thinking to the system of conical projection used in many maps of the world (*mappae mundi*) since the sixteenth century and taught in all French schools when Marcel was studying for his diploma (illus. 106). If we acknowledge this geographical source, it seems logical to suppose that the projective cones contain nine holes (not as many, then, as when the umbrellas were semicircular) which form a polygon, like an unusual 'continent', which is very similar to the malic moulds' genital areas.

This idea may have been preceded in Duchamp's mind by the idea of udders made of 'elastic metal . . . which allow the erotic liquid to pass through, drop by drop, and fall towards the warm chamber above the surface of the slow slide in order to impregnate it with the oxygen needed for the explosion'.¹⁰⁵ This seems to have been a very primitive fantasy, preceding the overall plan (as we know it) of the bachelor machine. What is being described here is similar in shape to the conical sand sieves (illus. 107)¹⁰⁶ and similar in function to a carburettor: we are again reminded of the famous car journey from the Jura to Paris. We must suppose, however, that the udders survived in some form in the parasols and preserved their shape thanks to unexpected help from the industrial sieves and cone-shaped maps of the world.

Nor must we discard the memory of other utensils connected in some way with artistic activity. In *Premières notions de sciences*, we are shown how



106. A conical *mappa mundi*, a source of inspiration for the sieves. Johannes Ruysch's is reproduced here (Rome, 1507).

to obtain black from smoke: the volatile, combustible product (which also has a natural tendency to rise upwards) is conducted into a kind of conical funnel where an extremely fine dust of intense blackness is deposited. This is used later in the manufacture of India ink (illus. 108).¹⁰⁷ I believe that this process might have inspired the cultivation of dust in the sieves and perhaps also the idea of directing the gas to their interiors. The 'decolouration laboratories' proposed in books on 'physics for fun' were of similar shape and function to those of which Duchamp appears to have been so fond (illus. 109).¹⁰⁸ This process might have fascinated him since the idea of removing colour fitted in with his crusade against 'retinal art' and would have matched his desire to achieve 'precision painting and the beauty of indifference'¹⁰⁹ which continued to condition his work on the *Large Glass*.

107. In the sieves, a substance is strained through successive cone-shaped filters; this also occurs in sand mills like the one in this Stephens-Adamson catalogue of 1916.



108. The system for obtaining black dye from smoke, from *Premières notions de sciences*, a brief textbook which Duchamp might have studied.

109. A domestic decolouration laboratory, from Bellet, *Beautés et forces de la nature* (1914).

[illegible]

Note 125, with its diagram of the *butter churn*, seems to demonstrate an idea as old as that of the sieves forming a quarter-circle. If we bear this in mind, the presence of the suction pump and the allusion to the semi-syphons makes a certain amount of sense. It may be that the gas was intended to be whisked around in the churn when it left the filters, then would have been sucked up by a pump and fed into a compressor before falling through escape tubes once it had been converted into a thick liquid. But the churn would have been shaken by a drive belt set in motion by a horizontal cogged rod connected to a smaller wheel, all of which makes us think of the intermittent motion of the glider (illus. 110). I believe, therefore, that this diagram shows initial attempts to make a unique bachelor machine, integrating the glider and the movement of the waterfall into the copulative operations which characterize the gas emanating from the malic moulds. I am inclined to suppose that this apparatus would have excluded the chocolate grinder.

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the *Green Box*, although there its form and function were changing: it resembled a fan or butterfly (illus. 111, 112). The inert gas, converted into a 'dense liquid' after being whisked by the blades or propellers, would have stuck to the lower part of the churn and taken on the appearance of 'glycerine mixed with water'.¹¹⁰ The gas would have reached the chute through a tube which (we assume) would have been attached to the suction pump.

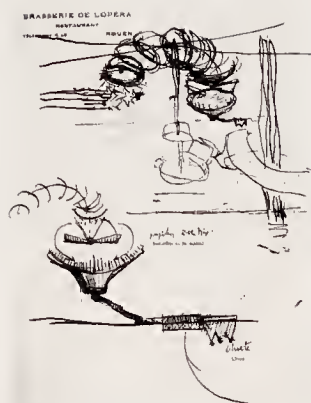
The express mention of the fan seems in some way to confirm the industrial origin which we suggested for the blades (illus. 84). As for butter churns, they were extremely popular in France at the beginning of the century. School textbooks show simple prototypes,¹¹¹ and in specialist publications there was no shortage of advertisements illustrating more complex versions for both domestic and industrial use (illus. 113).¹¹² In nearly all of these advertisements, the apparatuses are operated by women. Looking at these images, I cannot believe that they were adopted as the model for the version which appears in the *Green Box* (illus. 111, 112), although they do resemble more closely the diagram of the churn shown in Note 125 (illus. 110). The inspiration, then, was mechanical rather than iconographic. And how could we forget the erotic implications which Duchamp, with his tongue-in-cheek humour, would have seen in butter being produced (with female intervention) by whirling milk around inside a circular container?

THE HELTER-SKELTER AND OTHER CHEMICO-MECHANICAL DEVICES

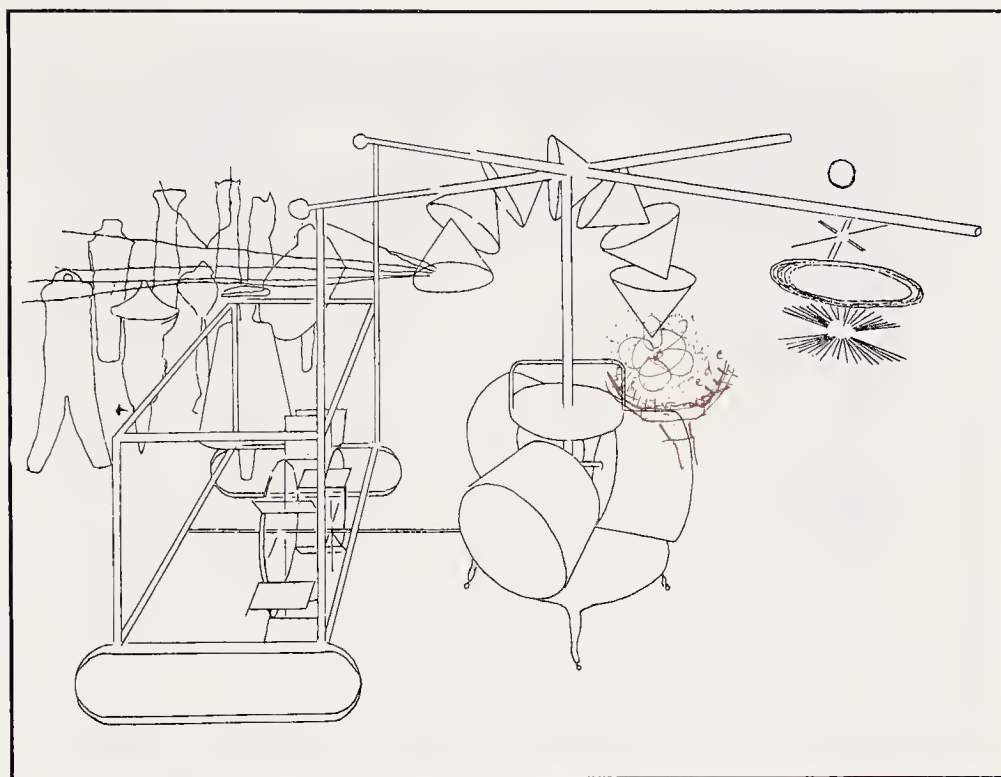
What we have just described is missing from the *Large Glass*. Duchamp toyed with many ideas for this part of his work without, apparently, deciding clearly in favour of any of them. In the 1965 engraving *The Large Glass Finished*, there is a descending spiral flanked by dots, and on the top edge of the bachelors' glass we see the boxing match (illus. 114). But although we are not sure that Duchamp wanted to show both things when he abandoned his work, leaving it unfinished, in 1923, it does seem possible to reconstruct the evolution of his thinking through several successive stages.

Initially, he thought of a 'vertical' meeting between the gas, which had finally completed its course, and the bride's dress or fluid (illus. 111);¹¹³ we do not know what forces would have permitted this upwards projection. Later on, after some hesitation,¹¹⁴ he produced a more elaborate mechanism: the gas was to descend through a series of 'sliding planes' in the shape of a helter-skelter or corkscrew (illus. 115).¹¹⁵ 'The combination', Duchamp stated,

[112] *Exterior and detail of the Butter-Churn (1907)*



III, 112. The butter churn (plus a fan) was then transferred to the end of the last sieve, as can be seen in these diagrams from the *Green Box*.

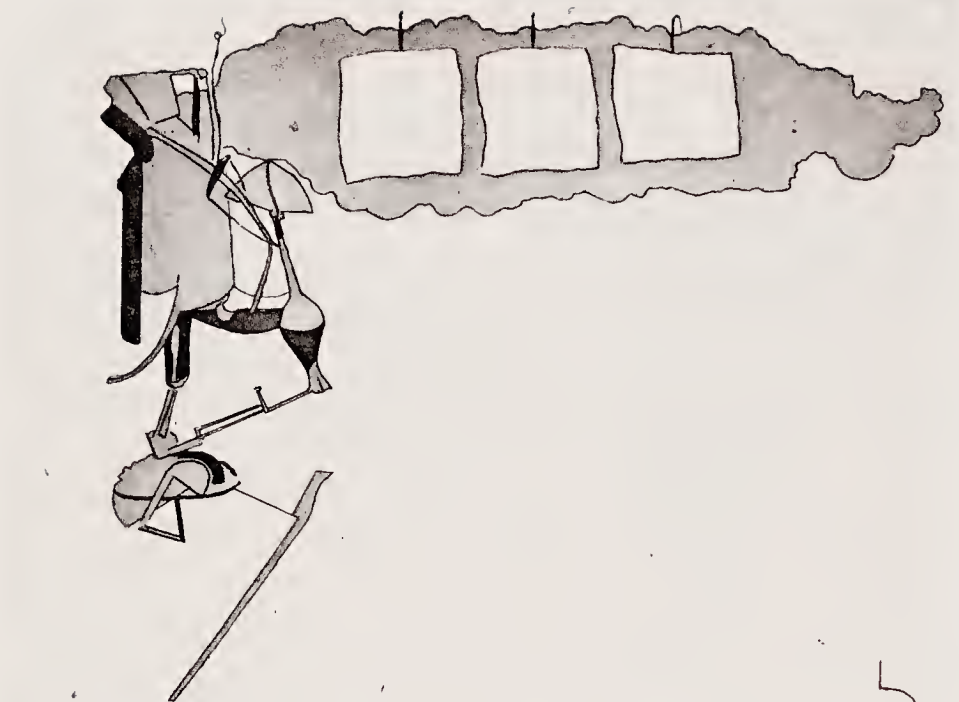


must be described with the meaning of the uncorked model. The three great noises falling into 'A' help the act of uncorking. The splash (nothing to do with champagne) ends the series of bachelor operations and transforms the combination of the gas for lighting and the scissors into one continuous support which will be regularized by the 9 holes.¹¹⁶

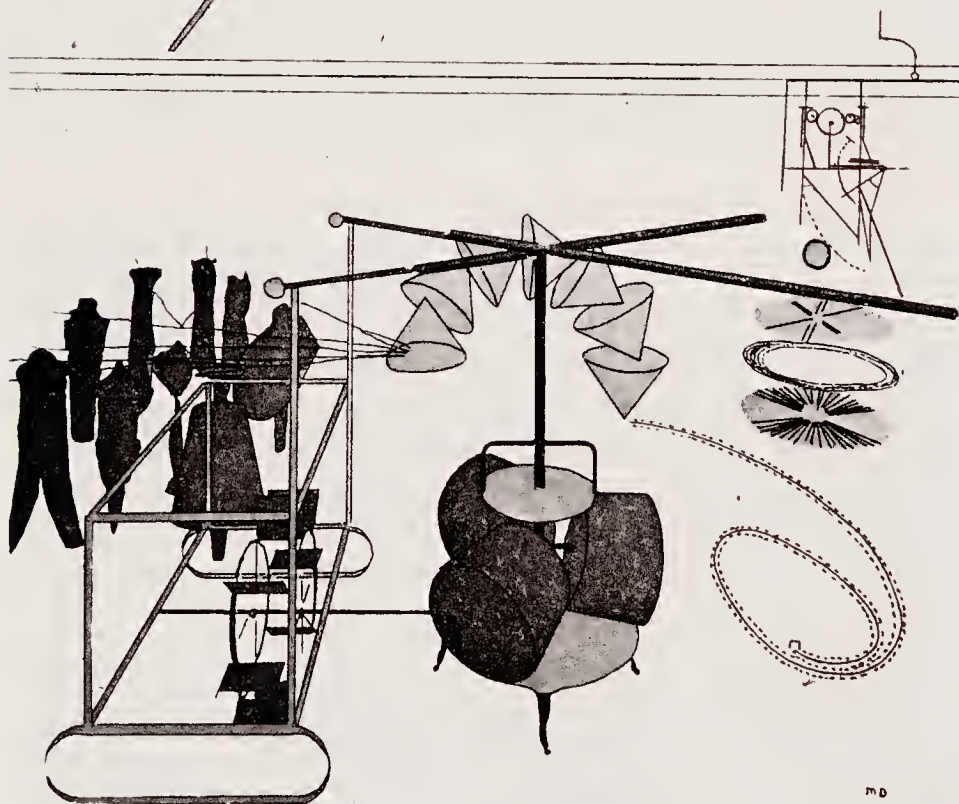
In another note, he writes about the terrible noise in the singular (*éclaboussure*) and adds many details about how this part of the mechanism would work: something would fall and produce a crashing noise at the end of the gas's spiral descent; it seems that Duchamp must have been thinking here of a ball (or explosive grenade), as things come

113. An advertisement for butter churns on the back page of the Coupan handbook *Machines de culture* (1907).





114. *The Large Glass Finished*, a 1965 engraving. Duchamp added the helter-skelter and boxing match to the work in the Philadelphia Museum of Art.

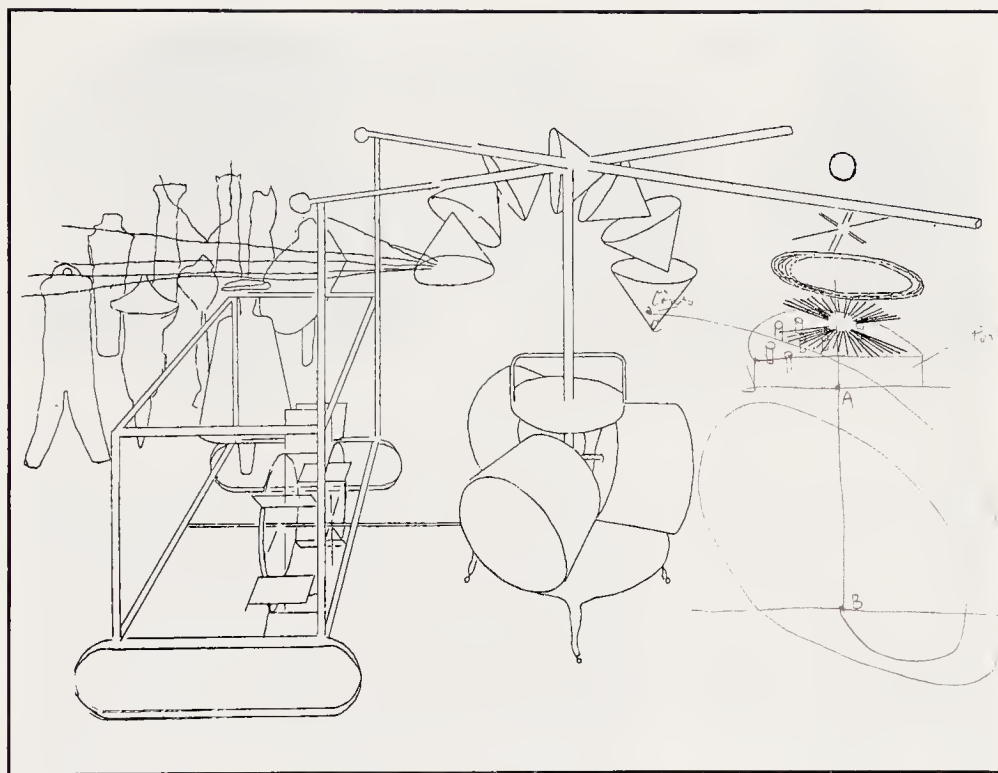


115. A popular helter-skelter, from a postcard from the beginning of the century recently discovered by Suquet.



marcel Duchamp

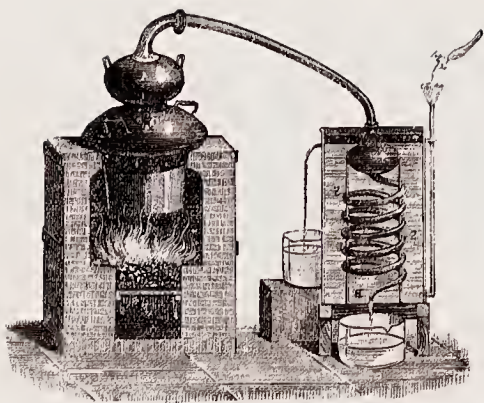
116. The 'weight with holes in', which appears in the *Green Box*, would have occupied the place of the circular cartouches. It seems that this idea contained something of *Buridan's Donkey* (the weight) and the last ophthalmic witnesses.



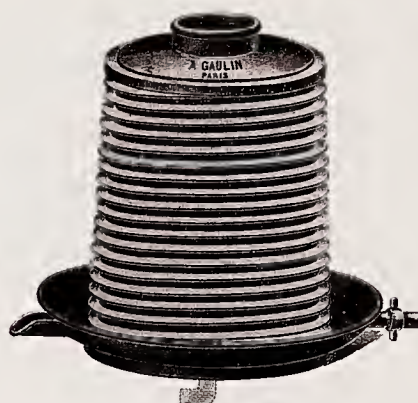
together on the axis of the gravity controller and the boxing match. So, as with the splash, a 'sculpture of drops' could be formed: '... after having been dazzled by the opticians' charts, each drop serves as a dot and is sent back as if by a mirror to the upper part of the glass to meet up with the gunshots.'

One of the diagrams which accompany all of this shows a strange, semi-cylindrical contraption labelled as a *weight with holes in*, occupying the same position as the ophthalmic witnesses were to occupy later on (illus. 116). I believe that these holes corresponded to the nine malic moulds and the nine dots projected like a map of the world on to the cones; the idea was transferred later to the nine gunshots, which are found higher up, on the bride's glass.

What seems to have survived from all of these speculations is that the gas, converted into a 'vapour of inertia' or kind of 'snow', emerges from the last of the sieves and descends a spiral;¹¹⁷ when it finally arrives at the lowest part, it is again projected towards the top with the hypothetical assistance of the boxing match. The mention of a 'splash' and the allusion to uncorking champagne, along with the nature of the gas at this stage of its run, suggests an association with ejaculation. At the end of the day, the



117. The coil is also a cooling system such as can be found in stills used for the production of distilled water. This one is from *Premières notions de science*.



118. Another spiral-form device is the cooler for sterilized milk as used in the early twentieth century.

spiral and the penis resemble each other in Duchamp's mind by way such word games as the one which he wrote on one of the discs for his 1925–26 film *Anémic Cinema*: 'L'Aspirant habite Javel parce que j'avais l'habite en espirale' (illus. 190).¹¹⁸ One might say that the bachelor apparatus described thus far is a kind of metaphor, in mechanical code, alluding to the internal functions of the male reproductive organs. The product of this 'body' would have made its way outside by means of the helter-skelter.

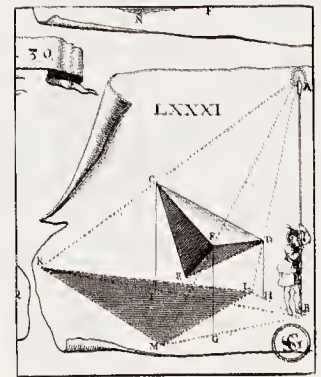
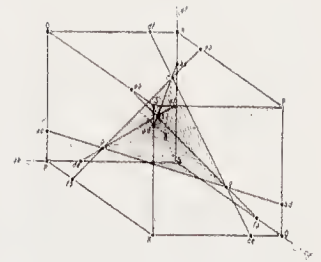
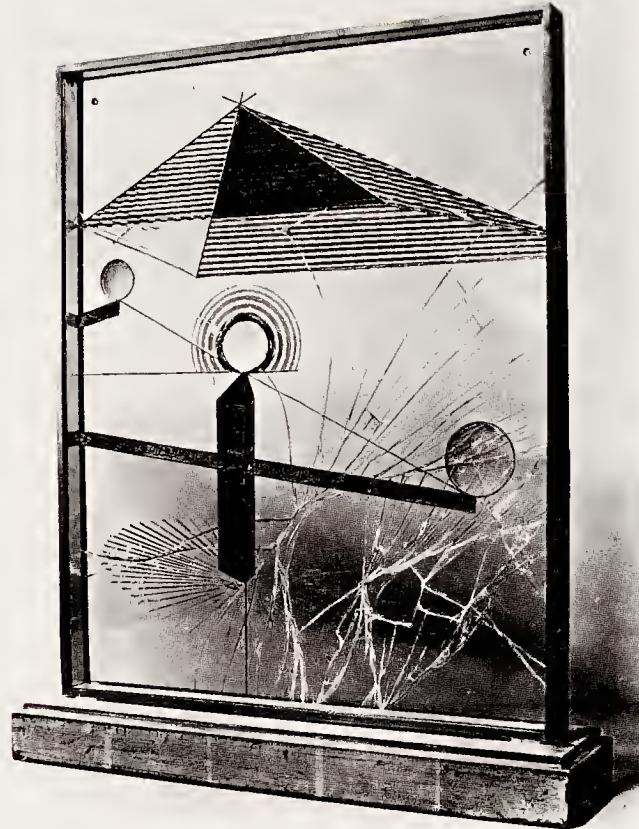
This is why the descent can be assimilated, in a certain manner, into the spiral of industrial stills (illus. 117) or those found on coolers used in the sterilization of milk (illus. 118). It cannot be denied that there is a great similarity of form and an evident functional parallel between these contraptions and Duchamp's *conjunctive apparatus*. The idea of cooling, an obsession for any manufacturer of engines, would have been doubly developed here and made partially redundant with the scissors/blades, although the latter were conceived more as a function of the *solipsistic machine*.

OPTICAL TRANSFORMATION

During his stay in Buenos Aires (1918), Duchamp painted his small work on glass *A regarder (l'autre côté du verre), d'un oeil, de près, pendant presque une heure* (illus. 119). It has always been thought that this was another 'mock-up' for the *Large Glass*, in the style of what he had done earlier with the glider and the malic moulds. What we have here, in effect, are two extremes of the scissors, each supporting a circular magnifying glass; on the vertical axis, where the two blades dissect each other, there is another 'optician's ring', a kind of vertical prism, another

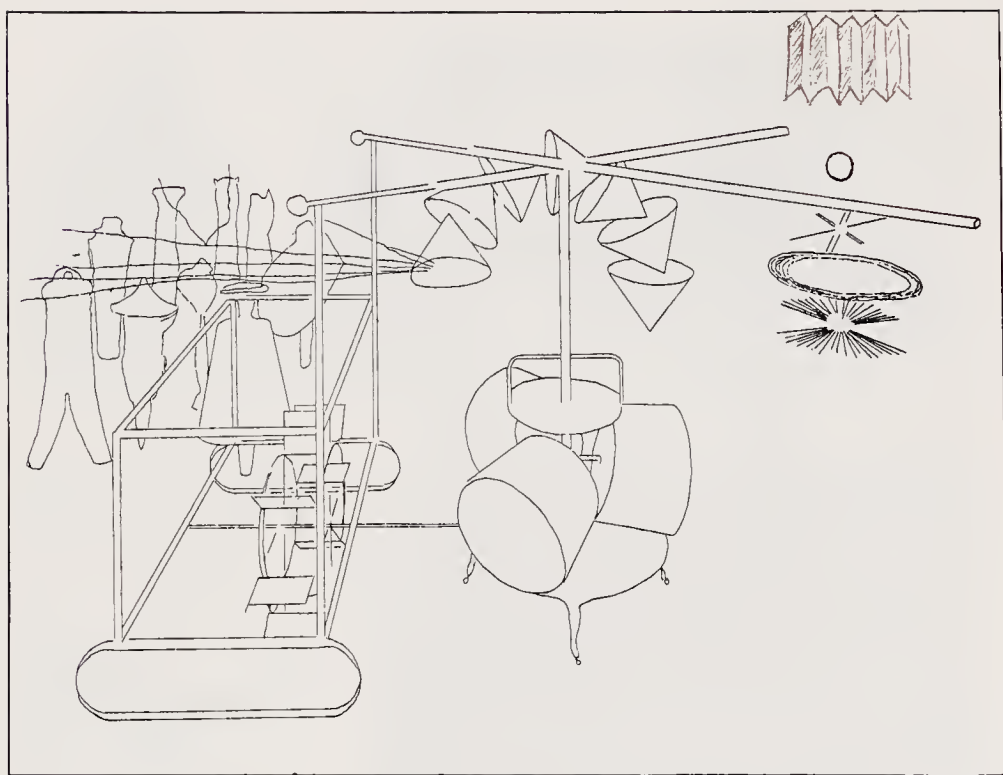
119. The small glass *A regarder* (*l'autre côté du verre*) *d'un oeil, de près, pendant presque une heure* (1918; Museum of Modern Art, New York) may have been conceived as a work for hanging in front of the ophthalmic witnesses. It marks the transition from a chemico-physical device to an optical one.

120, 121. The pyramid in *A regarder* ... seems to have been in competition with the Wilson-Lincoln contraption (illus. 122). Its inspiration came from the Jouffret image connected with the 'cross-section of the exastigma' and/or from another illustration from *Thaumaturgus opticus* by Nicéron (1646).



magnifying glass; and on top of everything there is a curious, misshapen, 'transparent' pyramid, drawn with parallel strips of red, green and yellow (illus. 120, 121).¹¹⁹ This glass has two little holes in the upper corners which would seem to indicate that it was meant 'to be hung up'.¹²⁰ Did he conceive it as something which was to be suspended next to the part which corresponded to the bachelors' mechanism?¹²¹ If this was his idea in 1918, as I believe it was, the *conjunctive apparatus* would have offered, after the splash, two simultaneous modes of establishing relationships with the bride: the chemico-mechanical one described above, to be represented on the *Large Glass*, and the optical one which would be produced with the small glass suspended in front of (or behind) it.

It seems obvious that Duchamp changed some of his ideas around 1918. His new interest in the 'optics of precision' was transferred to the *Large Glass*, which later received the opticians' chart and the magnifying glass (thus implying the rejection of the idea of hanging the Buenos Aires glass in front).¹²² But this decision ran counter to the technical argument which he had conceived four or five years previously, since the gas,



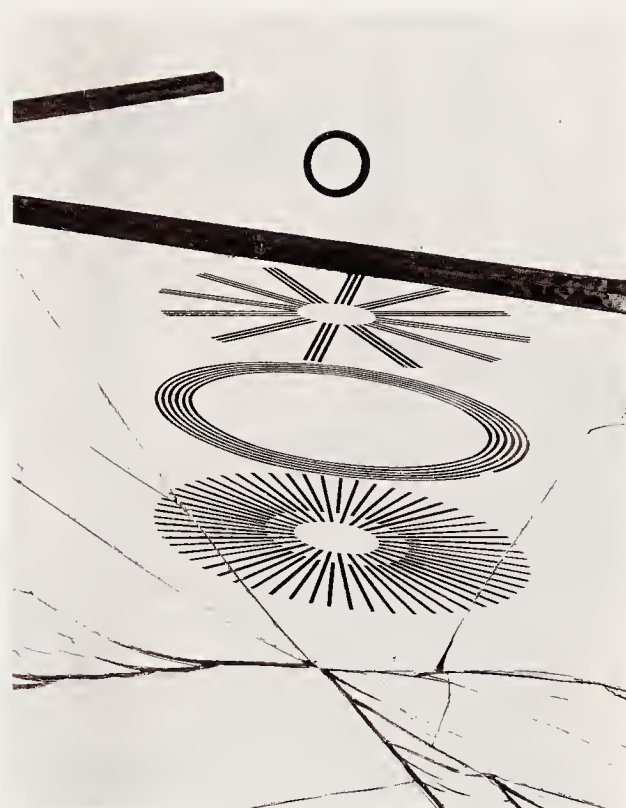
122. The Wilson-Lincoln system and its hypothetical position on the lower panel of the *Large Glass*. It is also possible to imagine a vertical lay-out in the same place (rotated through 45 degrees from the graphic) so that there is a clear view from above (the sphere of the bride) and below (the space of the bachelors).

transformed and beaten but retaining its original nature, was now obliged to project itself upwards 'like a mirror', by means of optical processes. Let us look at the different elements of this second and final stage in the evolution of the *conjunctive apparatus*.

The pyramid in *A regarder (l'autre côté du verre)* ... seems to have had an antecedent in the idea of making a geometrical figure to be placed 'in the 3 planes of the horizontal', which would be represented in two ways: from the front and in perspective; the 'Wilson-Lincoln system' would have been used for it – that is to say, several planes folded into an accordion with different images on each of the faces of the triangular prisms (illus. 122). Looking at it from the right, one would have seen the figure one way (Duchamp gave the example of a square), while from the left one would have seen it a different way. 'Reflected drops, not the drops themselves'¹²³ would have passed over this double representation. This suggests that the idea of an optical transmission of masculine energy towards the bride might have been latent in a primitive stage of the work but did not reach its full potential until 1918.

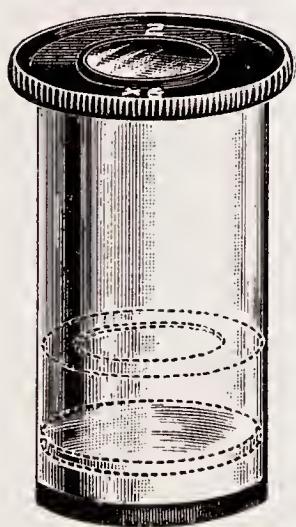
Above the splash, there are three circular shapes, seen in perspective and superimposed on one another (illus. 123, 124). The diameters of these

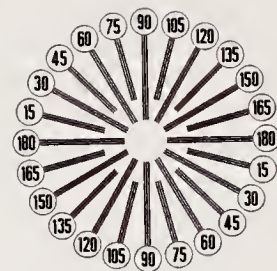
123, 124. Detail of the ophthalmic witnesses and the magnifying glass. Note the structural similarity between this lay-out and the optical equipment and lens of a microscope in the Stanley catalogue.



shapes are identical. A central hollow (much larger in the intermediate image) allows optical transportation of the drops from the lower part of the splash to the area of the boxing match. This is the last part of the *Large Glass* on which Duchamp worked; the complex technical problems involved in making it are well known,¹²⁴ and the problems involved in interpreting it are just as numerous. The first of these is the title: *Témoins oculistes* is the title whose negative image is reproduced in the *Boîte en valise*; but this plate was not printed, according to Bonk, until 1940. In the notes to the *Green Box*, the ophthalmic witnesses are mentioned only once, under the title *tableaux d'oculiste*, or opticians' charts.¹²⁵ I believe that the concept of these circles as 'witnesses' is a later one and must correspond to Duchamp's re-reading of his work as coded Surrealism after he adopted the theses expounded by André Breton in 'Phare de la mariée' and repaired the broken glass in 1936.

I also believe that the function of these charts, as we have seen, was to 'shock' the splash and send the drops back like a mirror to the upper zone. The magnifying glass between the two extremes of the blades would have increased this effect, as if the whole device was the schematic representation of a photographic lens or telescope



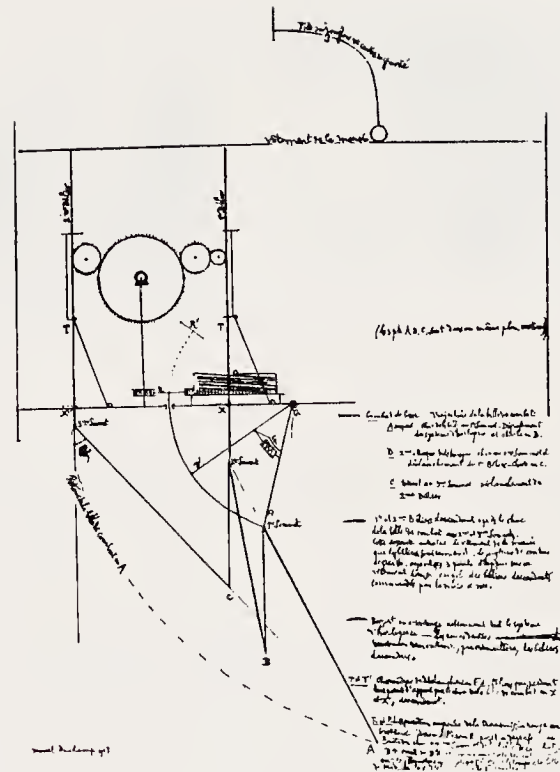


which optically reduced the immense distance to the bride (illus. 124).

However, while the circles in perspective are situated parallel to the ground, the magnifying glass, if it had been included, would have been vertical. This revolution through 90 degrees involves us as viewers, since we are obliged to look through it, just as with the small Buenos Aires glass. If we were to put the horizon line at head height, the magnifying glass would be very close to eye-level; I do not believe that the splash's proximity to the observer's genitals is a matter of chance. It is from here, from this 'visual' and topological development of the bachelor machine, that some of the essential aspects of *Etant donnés* derive. Apart from this, there is a likely connection between the *opticians' charts* and some of Jouffret's diagrams.¹²⁶ The copying of images used by opticians of the time (illus. 125–7) does not mean that a figurative union with the mathematical diagrams could not have been produced.¹²⁷ On the other hand, I do not believe that the optical contraptions of the *Large Glass* worked like 'metaphors for the "proof" of the fourth dimension',¹²⁸ since we have already seen that the idea for these circles (plus the magnifying glass) being 'witnesses' seems to belong to a later period.

125–7. Duchamp copied specific ophthalmic plates: the photograph taken in his studio c. 1922 shows an optician's chart nailed to the bottom with the rings which he placed in the centre of the contraption. Obviously, this also served for *Rotative plaque verre* (illus. 187, 188). Technical papers such as Schweinitz's (1899) provide us with probable sources: the astigmatism chart by Wallace and the ophthalmometer of Javal-Schiotz.

128. The boxing match, according to the drawing for the *Green Box*, is a contraption of doubtful technological plausibility, although it fulfils an essential function in the argument of the complete work. It undresses the bride by lowering two levers. It seems obvious that the inspiration here derives from clock mechanisms.



THE BOXING MATCH

As we have seen, the *Boxing Match* (illus. 114) appears in the 1965 engraving *The Large Glass Finished*. The purpose of this mechanism is to pull down the bride's dress and thus produce the nudity which figures in the work's title. It therefore occupies a position on the frontier, above the magnifying glass, in contact with the *gravity controller*, which is situated in the upper glass. It is just possible that the initial ideas for this element can be connected with a project which is mentioned in the posthumous notes: ' (In slow motion) Boxing match. Get hold of a film of a real boxing match which takes place in white gloves and blacken everything else out so that all that can be seen are the white gloves boxing.'¹²⁹ The result of such an experiment would have been to allow us to see four white spheres moving in a circular and compulsive way within a clearly defined space. After all, the idea of balls being thrown at people getting married was, as we have seen, a determining factor in the genesis of the *Large Glass*.¹³⁰

What is seen in the schematic drawing of the *Large Glass* (illus. 128) is



129, 130. A caricature of President Lincoln (1863) and a pinball table in an advertisement from the beginning of the 1830s. The idea of the 'force of projection' of the 'cannon ball' (boxing) may have originated in the world of billiard halls with which Duchamp was well acquainted from his youth.

a weird mechanism whose function would have been the following, more or less: a cannonball (billiard ball) would have been thrown three times on to three different points (summits), thus releasing two rams (*béliers*) which, as they descended, would have pulled down the bride's dress; this action would have made the controller of the centres of gravity dance, with its three feet standing on the lady's dress; the rams would have descended on a zip fastener and travelled back up along it, pulled by the cogs of a contraption from the world of watchmaking, then climbed to the upper limit of the glass; the mechanical force of this contraption would have come from a band of red steel. The origin of the balls' energy was defined in one of the posthumous notes, where it says that the explosion of the liquid gas 'fires the cannons of the boxing match and the cannon ball, and in addition to its power of projection acquires the ability to lift magnetically'.¹³¹ It is not easy to represent the technical truth of all this: Duchamp appears here to have been much closer to the purely Dadaist spirit of Picabia or Man Ray than to the implacable mechanical logic of the *solipsistic machine*.¹³² What is clear is that the bride would have been dressed and undressed at regular intervals, so the *conjunctive machine* would also have repeated the same operation indefinitely.

But the idea of the boxing match preceded that of the ophthalmic witnesses and the magnifying glass, so that its position where the Wilson-Lincoln system and/or the pyramid from *A regarder (l'autre côté du verre)* ... might have obliged us to suppose that two simultaneous operations took place in the final evolutionary stage of the bachelor machinery: an optico-chemical one which permitted the mirror projection of the gas to the upper zone (by means of the ophthalmic witnesses and the magnifying glass), and a mechanical one – the undressing of the bride. But Duchamp expressed his dissatisfaction with the boxing match: '... it was not exactly what I wanted,' he told Sweeney.¹³³ This hesitation prevented him from

including it in the *Large Glass*, even though it appeared in the *Green Box* and he also assigned it a precise place and size in the engraving of 1965. It seems obvious that he could not discard certain essential ideas: the bride had to be undressed; this was to be achieved, for want of a better method, by balls ascending and descending and moving in an almost circular fashion. Was this concept inspired by semicircular billiard tables (illus. 129–30)? Is not the bachelor mechanism also a ‘flipper’ machine of the type which bounces balls which have been fired upwards back down again?¹³⁴

The final version of the *conjunctive apparatus* is a perfect example of Duchamp’s method: the main concepts are preserved, and they embody a rigid intellectual logic. We are not intended to make arbitrary interpretations; the ideas pile up and infect each other by means of ‘semantic transparency’ (see Table 5). In the final analysis, all contradictions are resolved, as we shall see in the next chapter, by means of a system of thinking related to Jarry’s pataphysics.

Table 5 : The final phase of the ‘conjunctive apparatus’.

APPROXIMATE DATES	CHEMICO-MECHANICAL ELEMENTS	OPTICAL ELEMENTS	SEMANTIC AND FUNCTIONAL ELEMENTS
1915–17 (?)	<ul style="list-style-type: none"> – Helter-skelter coil. – Buridan’s Donkey? – Weight with holes in. – Mobile and explosion. – Boxing match. 	<ul style="list-style-type: none"> – Wilson-Lincoln system. – Opticians’ charts? 	Gas (ignited?) thrown upwards after the explosion. The boxing match undresses the bride. Optical elements and their integration into the ‘conjunctive apparatus’ not well defined.
1918 (Buenos Aires)	<ul style="list-style-type: none"> – Helter-skelter/coil. – Buridan’s Donkey? – Mobile and explosion. – Boxing match. 	<ul style="list-style-type: none"> – Optical superimposition of the glass <i>A regarder</i> ... (contains 1 ophthalmic witness, 1 prism, 3 magnifying glasses & 1 pyramid. 	Double projection of the gas: chemical and mechanical (to appear in the <i>Large Glass</i>) and optics (seen in the Buenos Aires glass).
1919–23	?	<ul style="list-style-type: none"> – Ophthalmic witnesses. – Magnifying glass. 	Optical transformation of the final operations of the ‘conjunctive apparatus’.
1965 (<i>The Great Glass Finished</i>)	<ul style="list-style-type: none"> – Helter-skelter. – Boxing match. 	<ul style="list-style-type: none"> – Ophthalmic witnesses. – Magnifying glass. 	Gas cooled by its descent through the helter-skelter is thrown upwards optically. The boxing match undresses the bride.

‘...And the Beauty of Indifference’
(The Bride Stripped Bare)



THE ARTIFICIAL WOMAN

The first thing to say about the upper glass, dedicated to the *bride*, is that she maintains a thematic proximity to the Symbolist myth of the artificial woman. Literary creations such as *Eve of the Future* by Villiers de L'Isle Adam centred on the idea of manufacturing the perfect female form for a beautiful soul; it appears that this concept hovered in the ether like a somewhat misogynist extension to the Frankenstein theme. Duchamp might have inherited this and other precedents without forgetting the ideal woman spoken of in chapter xxxvi of *Voyage au pays de la quatrième dimension* by G. Pawlowsky, or the Marinetti texts on the subject. More relevant was the similarity to Francis Picabia, who began thinking about 'artificial' women in the years following 1910. Such Cubist works as *Udnie*¹ made way for a more mechanical iconography to explain the non-biological origin of females: *Voilà la fille née sans mère* (1916–17) or *Poèmes et dessins de la fille née sans mère* (1918) are good examples of the relationship with Duchamp's work. It is obvious that this myth, no longer confined to painting, continued to have a life after Dadaism, featuring in such films as *Metropolis* (1926) or *The Bride of Frankenstein* (1936).

The artistic significance of this invention might have been bolstered by a knowledge of the complex contraptions traditionally used to modify women's appearance. By this I mean the corsets, supports, bustles and belts of all kinds used to enhance certain parts of their anatomy and mask any defects. The satirical press was frequently preoccupied with all of these things, and we have already observed that Duchamp was fundamentally a humorist. Such articles of dress were to be seen everywhere in shops and catalogue illustrations (illus. 131).² There was also a full range of



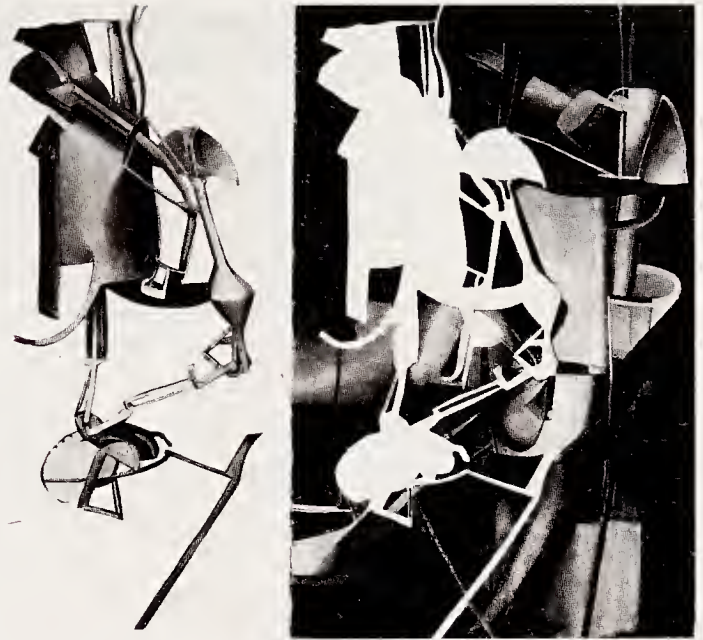
131. Corsets and other accessories accentuated the 'artificial' dimensions of women. Advertisement published in *Dry Goods Economist* (1901).

132. Different types of supports, from a P. Hartmann catalogue of medical products (1911?).

orthopaedic artefacts whose therapeutic use bolstered the idea of the artificial female body (illus. 132).³

What can be seen in the upper part of *The Bride Stripped Bare by Her Bachelors, Even* (illus. 55) is, in any case, quite different from the mechanism of the bachelors: an elongated organism, shown horizontally, seems to hang from the upper frame; connected to it, in the left third of the upper glass, there is a strange mass of thread formations, tenuously connected to each other. Duchamp copied the principal elements of his picture *Mariée* (illus. 4, 133), painted in Munich in August 1912, thus trying for the first time to re-use earlier works, a technique he was to make great use of later, as we have seen, when working on the bachelors. The first thing to remember is that this is not an 'abstract' work in the usual sense of the word, but something with a literary feel and an organo-mechanic function closely connected to all of the processes in the lower part. Duchamp recognized this in connection with the Munich oil painting: 'A picture like *The Bride* is abstract because there is no figuration. But it is not abstract in the narrow sense of the word. It is visceral, if you like.'⁴ As for the elongation of the upper part, the justification for this is contained in one of the notes: 'Voluntary horizontal expansion of the bride about to encounter the vertical expansion of being undressed'.⁵ To understand this phrase, we have to describe the general mechanism of the bride, connecting the functioning of each piece with that of the adjacent pieces, and that of the whole thing with the zone of the bachelors.

133. For the 'female pendant', Duchamp copied a fragment of his picture *Mariée* (1912; illus. 4). Diagram by Jean Suquet.



A long note in the *Green Box* helps us to understand how Duchamp conceived this part in accordance with his speculations on the boxing match and also, perhaps, with those of the gravity controller:

... the bride, fundamentally, is a petrol can of love (or power-timidity). This timid potency, distributed to the motor with weak cylinders, in contact with the sparks of his constant life (magneto-desire), explodes and expands to the virgin who has arrived at the end of her desire.

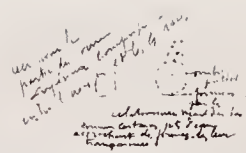
In addition to the energy produced by this small autonomous engine, other artificial sparks are produced as a consequence of the nudity caused by electricity, and these sparks cause explosions 'in the motor with weak cylinders', whose 'two strokes' seem to represent the bride's basic drives. The first stroke (corresponding to the sparks of the magneto desire) governs the standard shaft, or central nucleus of the female body; the second stroke regulates the 'clockwork apparatus' which governs the undressing of the bride by the bachelors. 'The bride', Duchamp concluded,

accepts being undressed by the bachelors since she provides the petrol or perfume of love for the sparks caused by being undressed electrically; and moreover, she helps the complete undressing by adding to the first explosion of sparks (electric undressing) the second explosion of sparks from the magneto-desire. Expansion.⁶

There are, then, two complementary operations and two directions in the flow of energy from the bride: the first proceeds from the bride

herself, is situated to the left (in the standard shaft) and moves to the right in order to 'encounter' whatever is coming from the bachelors; the other, advancing in the opposite direction, is a consequence of the undressing and has its origin in the right-hand third of the same glass panel.

But this is too 'mechanical' and seems to correspond to some evolutionary stage which preceded Duchamp's decision to transfer important fragments of the 1912 picture to the glass without any modifications. The final version is, as we shall see, much more 'organic', which is not to say that all of the important initial elements were discarded. It is therefore necessary to suggest an analysis similar to the one we performed on the lower glass, to try to isolate the different phases through which each element passed. In order to do this, we must follow the itinerary of the gas (converted into something else) once it has crossed over the border of the bride's territory.



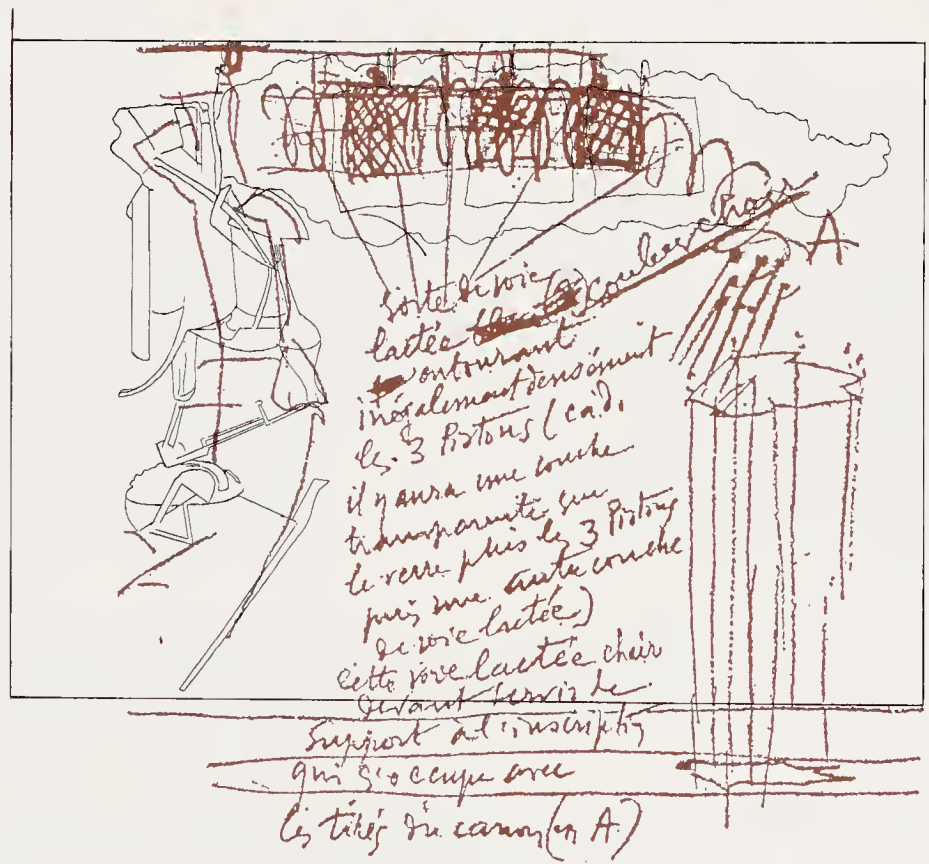
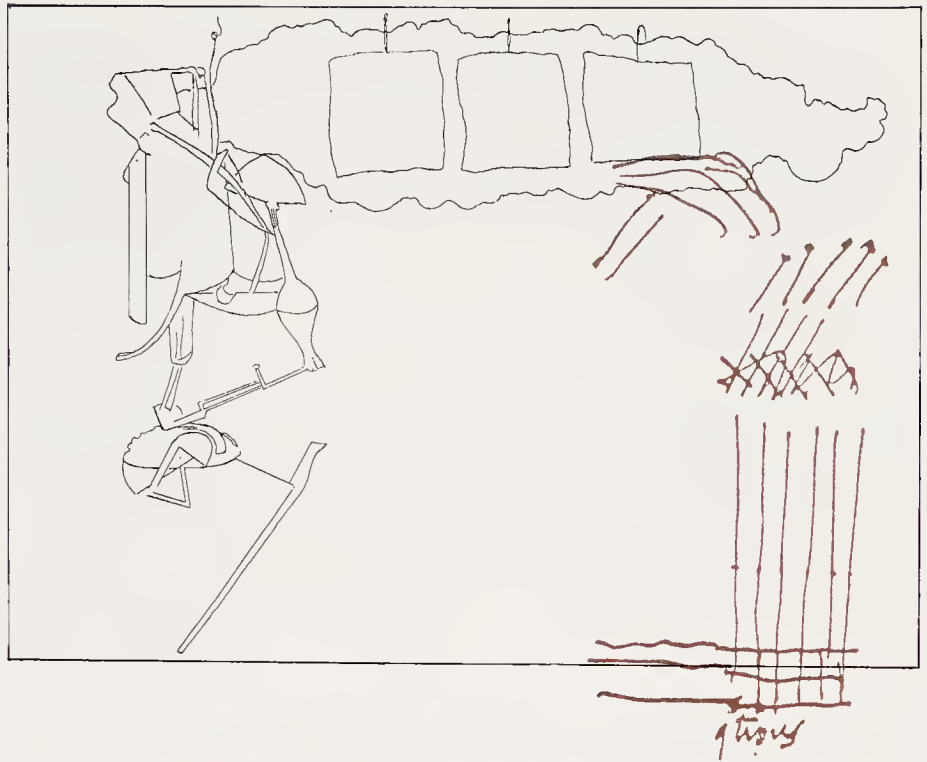
134. The 'shadows transferred from the splash' form a kind of circle according to the little drawing in the *Green Box*.

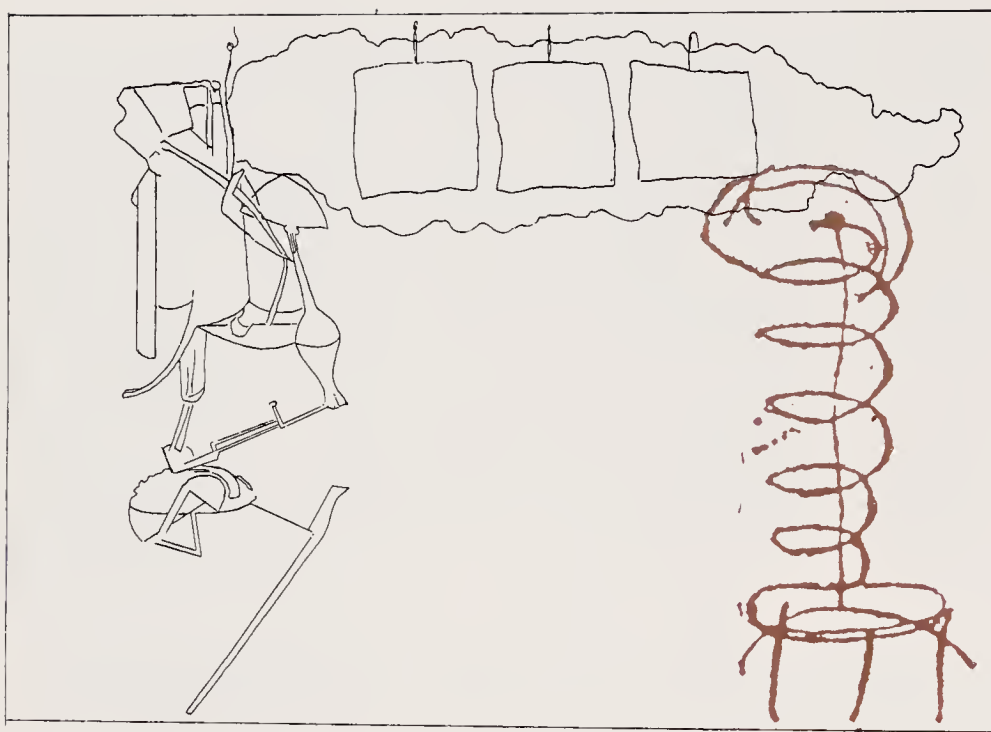
THE SPLASH'S SHADOW AND THE GRAVITY REGULATOR

In the space between the horizon and the nine holes, above the boxing match, Duchamp thought of placing the *shadows transferred from the splash* 'emanating from below, like jets of water that make shapes by virtue of their transparency'.⁷ Next to the brief note which mentions this, there is a diagram bearing stains roughly in the shape of a circle (illus. 134). Although this design was abandoned, we have seen that the idea of making a picture from 'transferred' shadows was certainly exploited when Duchamp painted *Tu m'* (illus. 53). It was also congruent with the optical transmission of the bachelors' fluid in relation to the Wilson-Lincoln contraption and the opticians' chart. A trace of these shadows formed by the transparent fluid may be represented by the vertical bands of veneer which the artist intended to paint in the same spot, representing in perspective the lines of the right-angle projection of the polygon formed by the nine bachelors (illus. 135, 136),⁸ but this idea was not developed either.

The mechanical part of the undressing, connected technically to the boxing match, was to correspond to the *gravity regulator* (*jongleur, manieur* or *soigneur de gravité*).⁹ Although this element plays a very minor role in the annotations to the *Green Box*, it must have been important for the original concept of the bride to judge by the texts and diagrams which appear in the posthumous notes.¹⁰ If real, it would consist of a tripod with one long vertical pole (or a spring),¹¹ at the apex of which there would

135, 136. The idea of the shadows from the splash had to be sustained by painting vertical bands of veneer. It appears that such lines would have formed, in perspective, the 'polygon of sexual organs' from the malic moulds (both diagrams originated from the *Green Box*).





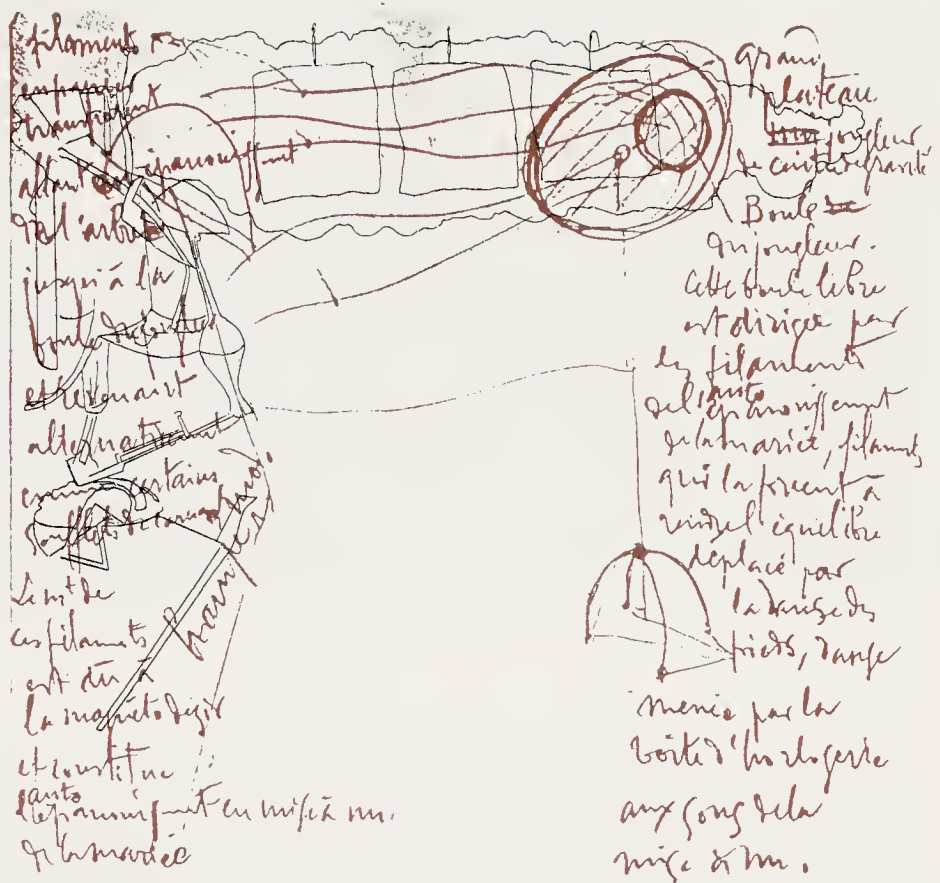
137. The gravity controller over a spring, from the diminutive drawing of the *Green Box* superimposed photographically on the *Large Glass*.

be a little plate, on top of which there would be a ball which enjoyed relatively free movement, connected to the expansive threads uniting it to the standard shaft (illus. 137-40).¹² The whole contraption would be unstable, standing as it was on the bride's slippery dress. Its function, then, would be more or less the following: the battering rams from the boxing match would pull down the bride's dress, as we have seen, and this action would make the tripod oscillate; the ball from the upper part would look for a new position on the little plate, thus preventing the whole thing from falling over, and this movement would in some way stimulate the threads connecting it to the centre-life or motor-desire of the bride. Duchamp said expressly that the ball was made of black metal and that it had

the ability to attract the threads or branches which, out of sympathy, maintain the equilibrium of the regulator (juggler). These branches are formed according to the law of irrigation of the magneto-desire served by the cylinder of sex.¹³

It is as if the ball, when it oscillated, produced or provoked a two-way current by means of which the bride formed a relationship with the

138-40. The gravity controller was like a little table-top on an unstable tripod, with a ball rolling around its circular top. The ball would have been 'licked' by the threads from the standard shaft (diagrams to the *Notes*, no. 149, and the *Green Box* superimposed on the *Large Glass*). An evocation of this contraption (much later and decontextualized from the *Large Glass*) was made by Matta, following Duchamp's instructions, for the Surrealist exhibition of 1947 (photo published by Suquet).



bachelors. The gravity regulator forms part of the female organism, but is still, in some way, an extension of the masculine zone. This is where we would naturally find the 'sex points'.

I believe that the threads were replaced later by the Milky Way with the three pistons operated by a current of air, and that was how the whole mechanism of the 'juggler' (and perhaps also the boxing match) lost its meaning. Although the 'branches' were horizontal and to some extent represented the bride's expansion, their material and function were very different from what was adopted later on; Duchamp compared them in a note to paper serpents in that they advanced compulsively as far as the ball and then returned to their original position.¹⁴ The idea persisted that communication between the bride and the bachelors took place here through an encounter between the fluid of female energy, which runs from left to right, and the masculine fluid, which runs vertically from the bottom,¹⁵ as we have seen in one of the notes.¹⁶

THE CANNON SHOTS

Following this mechanism, or simultaneously, Duchamp thought up the polygon (formed by the bachelors' sex points) projected geometrically towards the top (illus. 136), which we have already referred to as an idea which was not carried through. Overhead there would have appeared nine *cannon shots*, which he did include in the glass although in a different way (and with different implications) than he had intended. The shots were to be made in three batches of three, from three different points but always aiming at the same target. Duchamp fantasized about the possibility of the shape obtained in this manner being the projection of 'the main points of a three-dimensional body'. This figure, with 'maximum skill . . . could be reduced to one point (the target)'.¹⁷

When Duchamp wrote this note, he must have been thinking about the anamorphoses and Baroque treatises on perspective which he had studied in the Bibliothèque Sainte-Geneviève. In the illustrations of these works, one frequently encounters grotesque or apparently random forms which acquire precise figurative form only when viewed from a particular angle.¹⁸ It is no more than a single step to assuming that any image can be the representation of any other. Here, we are confronted with a central facet of Duchamp's thinking, which can be observed in almost all of his optical devices and which is an obsession in *Etant donnés*. Another related project involved making an object out of different materials



141. Silhouette of the Milky Way with the hole for the three draught pistons. All of this would have replaced the threads.

which would contain a sort of (three-dimensional) 'linear design' which, observed through a viewfinder, would give the impression of a plan.¹⁹

Duchamp used a toy cannon to fire the shots at the glass. A few matches stained with paint were used for the projectiles, and this is how the spots where the 'shots' landed were marked on the glass. The bull's-eye must have been situated in the lower right-hand portion of the Milky Way, as this is the zone in which the holes are found; one of them is inside the bride's body. Chance and an obvious thematic logic had come together: the shots come from below, but when they are fired from a perpendicular cannon, the geometric dimensions of the work are multiplied.²⁰ The performer-viewer (representing the bachelors) intervenes actively in the course of events, and the *Large Glass* thus becomes part of the tongue-in-cheek mechanical ambience of *Fountain* and *L.H.O.O.Q.*, as if it were also a ready-made which relied *very heavily* on mechanical assistance.

THE MILKY WAY AND THE DRAUGHT PISTONS

The most obvious visual element of the whole work is the *Milky Way* which replaced, as we have seen, the expansion of the threads running from the standard shaft to the ball of the gravity regulator. Here, we are dealing with an elongated entity, like an ellipsoid deformation or a cloud '[in the style of] Louis XV like the feet of the [chocolate] grinder',²¹ which surrounds three vaguely square holes (illus. 141).²² Duchamp wanted to paint it 'the colour of flesh',²³ and it is easy to suppose that we are looking at the extension of the bride's body. Apart from the issues this suggests, this element would have served as a support for messages or the background for an inscription which was never added.

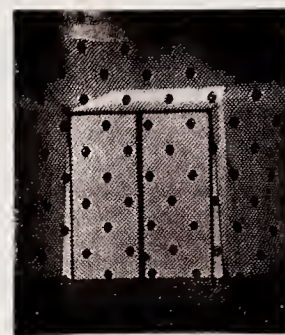
The idea for this text did evolve, however. Initially, it was to be pendant in form, with letters of the alphabet that would move through the threads from the standard shaft as far as the little plate belonging to the gravity regulator. It seems that Duchamp intended to make a sort of three-dimensional model, take a photograph of the result and transfer it to this part of the *Large Glass* by photo-chemical means, but this turned out to be a poorly considered fantasy; in the same note, he wrote, in parenthesis: '... ask a photographer for information.'²⁴ When he replaced these threads with the present lay-out, he imagined that the draught pistons would be like 'a kind of triple grille through which the milky way

supports and conducts the demands [from the female pendant to the bachelors]'; this contraption would allow 'all the combinations of the letters sent through this triple form, orders, petitions, authorizations, etc., which have to reach the shots and the splash'.²⁵ We are still dealing with a complicated contraption, at least in terms of its imaginary operation, and the most likely thing is that when Duchamp abandoned the *Large Glass* in 1923, he was only thinking of the possibility of placing a 'text' fired by the bachelors which would be inscribed on the Milky Way.²⁶ Such an inscription might have been written on a semi-transparent glass background (such as an unpolished or unburnished glass, said Duchamp), thus accentuating the idea that it was made with the material from the splash.²⁷ Suquet confirms that it would have contained the word 'enjoyment'.²⁸

It is evident, in any case, that the *three draught pistons* are, in a sense, mediators, decoders of orders or wishes, and the communication route, inside the bride, between the standard shaft and the bachelors' shots.²⁹ Duchamp made them when he was transferring the random profile of three squares of gauze photographed while a current of air was passing through them (illus. 142). Several notes in the *Green Box* testify to the importance assigned to this procedure,³⁰ which is closely related to *Trois stoppages étalon*. Tinned chance, in both cases: one could say that the three threads (lines) are to the plan what the three surfaces of gauze (plans) are to the third dimension.

The external profile of the Milky Way is also the result of a contemporaneous operation, since I believe that the initial germ for this shape can be found in a note in which Duchamp speculated on the more or less hazardous movement of the two objects above and below a straight line (illus. 143). What we were dealing with is a kind of musical score: 'In conventional terms . . . "A", for example, could be the piano [and] "B" the violin (not important)'.³¹ This could also be the source for the function of transmitting orders or messages assigned to this part of the *Large Glass*.

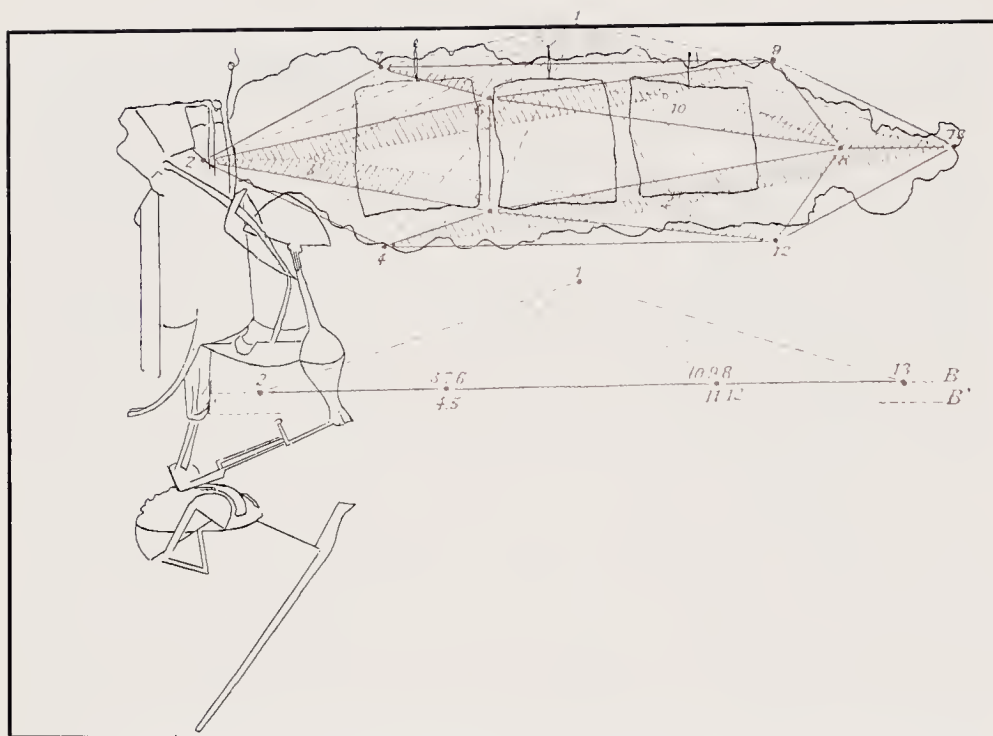
Of course, the appearance of the unfamiliar Milky Way and the pistons could be justified by saying that they are a metaphor for the fourth dimension, something which expands outwards 'from a three-dimensional space along the perpendicular axes which are not contained within this space'.³² One of Jouffret's engravings illustrating the 'concept of space as an infinitesimal element of the extension' (illus. 144) shows the projections of a regular twenty-sided figure, intended to show that '... an eye, situated at 1, outside the space E, would see on the same level . . . all parts



142. A photograph of gauze used by Duchamp for the design of the draught pistons (1914).

[illegible]

But this is not the whole story. Let us turn our minds to the ideal woman (*femme-échantillon*) or emblem from the novel by G. de Pawlowsky. Described as a kind of model for producing many identical women, she is compared to a queen bee. Let us keep the allusion to insects in mind because it will come in handy later. Now, I want to examine the similarity between this horizontal hanging object and the traditional name-plates on urban public buildings. One might say that Duchamp's decoy might waver when rocked by the wind. An inscription would have strengthened such a similarity. The decoy also resembles a template for the drawing

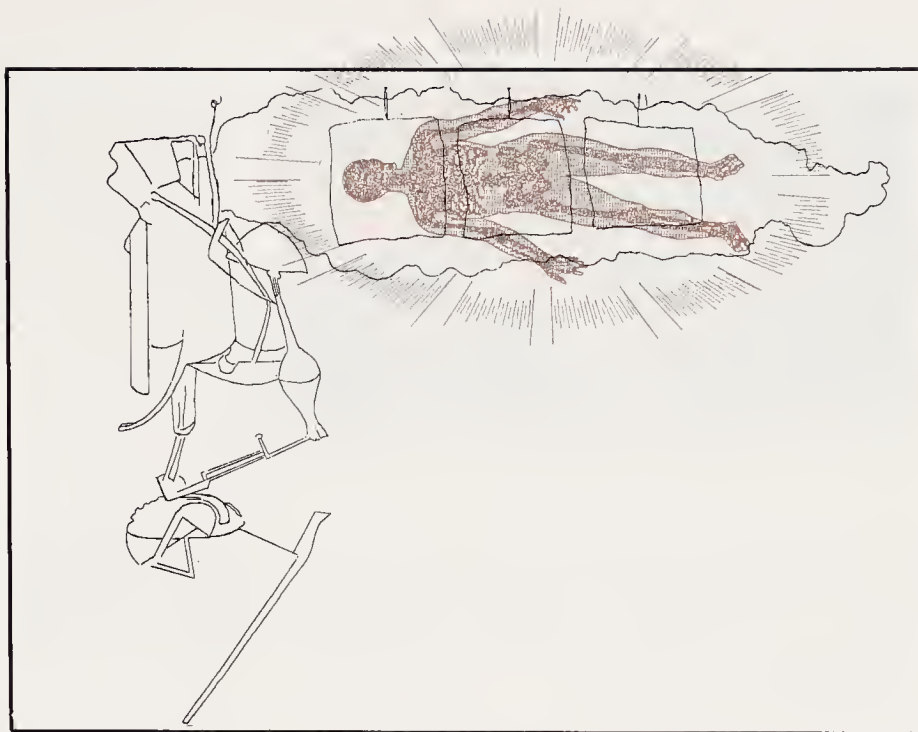
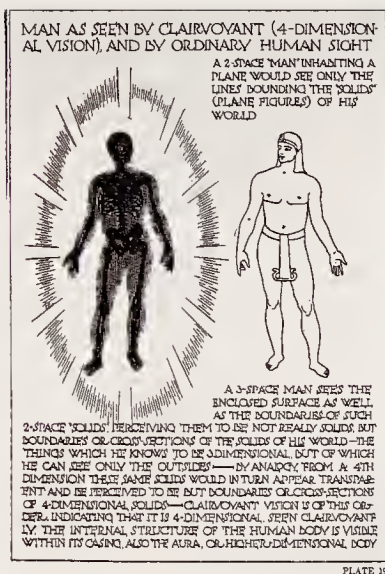


144. The bride is not a hyperdimensional and transparent entity: the profile of the Milky Way corresponds well with Jouffret's design in connection with the projections of a regular twenty-sided figure.

and cutting out of many other articles, all of them identical.³⁶ I therefore think that it is possible to establish connections between the conceptual ambience of the fourth dimension, the random rules of the 'shortened metre', the world of fashion and the woman-pattern of the *Large Glass*.

THE STANDARD SHAFT

The bridge's most complex part is situated to the left of the upper glass (we have already noted that we are dealing with a partial copy of the picture which Duchamp painted in Munich during August 1912; illus. 4, 133). Duchamp never explained what we see here, but as some of the elements recall the speculations which occur in some of his notes, we must suppose that the final lay-out involved many of the meanings embodied within the initial ideas.³⁷ I am going to call all of this the *standard shaft*, accepting the definition from the *Green Box* (in 'the skeleton bride') as 'a kind of spinal column',³⁸ but remaining aware that the term corresponds to a stage of speculation about the bride which is primitive and more mechanical than the reality. The whole thing is composed of diverse elements attached to each other but off-balance, as if

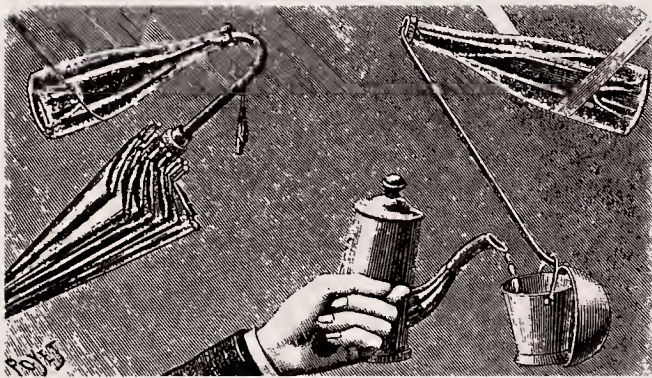


145, 146. A four-dimensional view makes bodies transparent, according to Bragdon (*A Primer of Higher Space*, pl. 19). The human being with his halo can be contained within the cinematic expansion of the bride.

they were the translation in 'visceral' code of domestic games mentioned by 'Tom Tit' in *La science amusante* (illus. 147).³⁹

From the functional point of view, the standard shaft includes all of the bride's governing organs (centres of desire), and I believe that when she was first conceived there was a greater connection with the mechanical 'trees' than with the organic metaphors which are more intense in the final version.⁴⁰ It has been said that Duchamp thought of converting the glass into a giant photographic plate in order to transpose the main elements of the 1912 oil painting in a non-traditional way,⁴¹ but we have already seen that this apparently referred more to the inscription which the threads were going to transmit between the standard shaft and the gravity regulator.

The most important part of the standard shaft is highly developed in Duchamp's annotations. I refer here to the *female pendant*,⁴² a mechanical composition of various pieces left dangling 'at the mercy of the air flow'.⁴³ It is possible that the initial idea for this body may be found in the note to the *White Box*, in connection with a spherical organism held down by threads attached to different parts of a domestic setting (garden, roof, patio, etc.); in the corresponding diagram, there is a star-shaped object whose nucleus appears to float at a point equidistant from all fixed points (illus. 148); in any case, there can be no doubt that what is being



147. A possible source of the female pendant: the heterogeneous objects, attached to each other and suspended in mid-air, suggested as entertainment by 'Tom Tit' (*La Science amusante* [1890]).

described is very close to certain ready-mades, such as *Sculpture de voyage* (illus. 28) or *Porte-chapeau* (illus. 27).⁴⁴ It may not be absurd to connect these feminine entities with the great admiration which the Duchamp family felt for the poet François Villon, who compared marriage with the gallows.⁴⁵

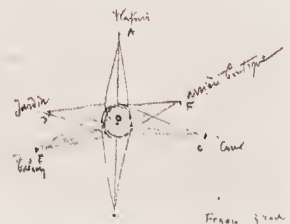
Strictly speaking, the topmost piece of the female pendant is hemispheric, is in a fixed position and has a groove which allows the rod holding up the lower elements to move in any direction (illus. 149). Also important is the angle of inclination between it and the frontal vertical plane, since this expresses 'the corner of the bride's eye'.⁴⁶

Underneath, tied by the shaft or handle, is the *thread matter*, forming a kind of cylinder or blind, such as those seen in the drawings (illus. 149) which, Duchamp said, were contained in a 'picture of a skylight leaning on a magneto'. Elsewhere, he mentioned an 'isolation housing containing the material for the threads in which there would be the storms and fair weather of the wasp'.⁴⁷ In this context, the metaphor of the barometer which registers 'atmospheric pressure' as determined by the secretions which emanate from the lower organ makes sense.⁴⁸ Now we know the exact point on the bride from which the threads come (similar to a 'constant flame') which *lick* the ball belonging to the gravity regulator; if such 'branches' were required to act as a sort of 'paper serpent', we could imagine them furling and unfurling, turning the inclined central pole which could move freely, suspended from the upper rod.

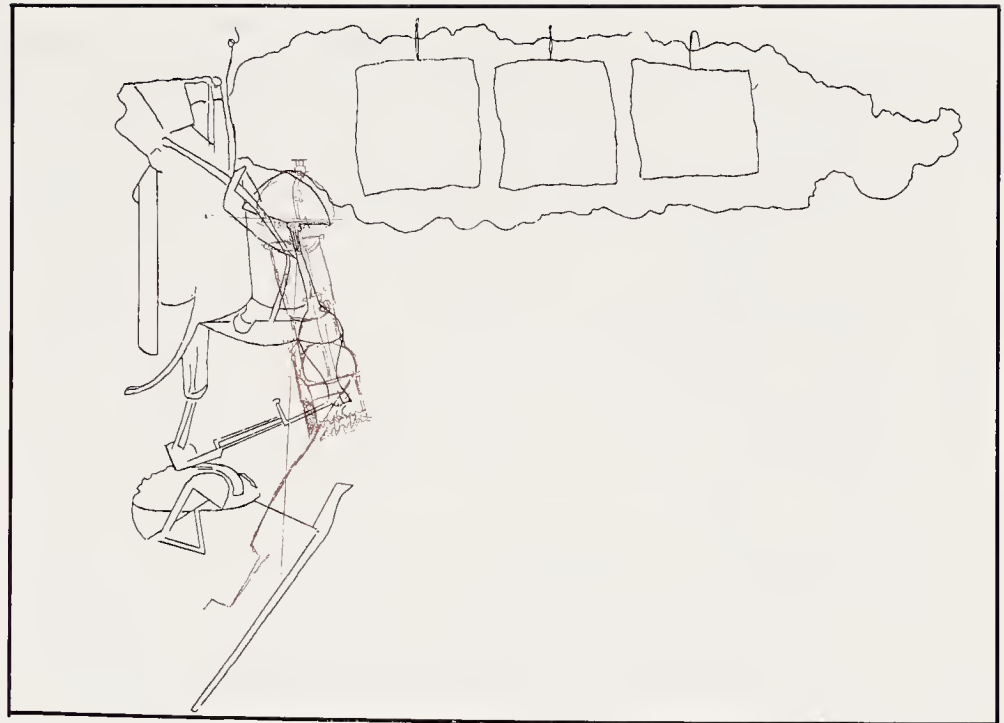
THE WASP (SEX-CYLINDER)

The thread matter is 'fed' by means of a little tube or artery which conducts what we think of as the 'gasoline of love'; this emanates from

148. A spherical organism tied down with threads, star-shaped. This diagram from the *White Box* would have been useful to Duchamp for the development of the top part of the *Large Glass* and for his suspended ready-mades.

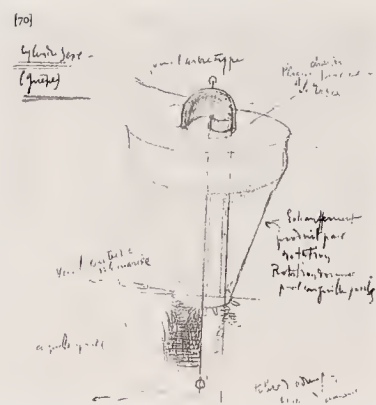
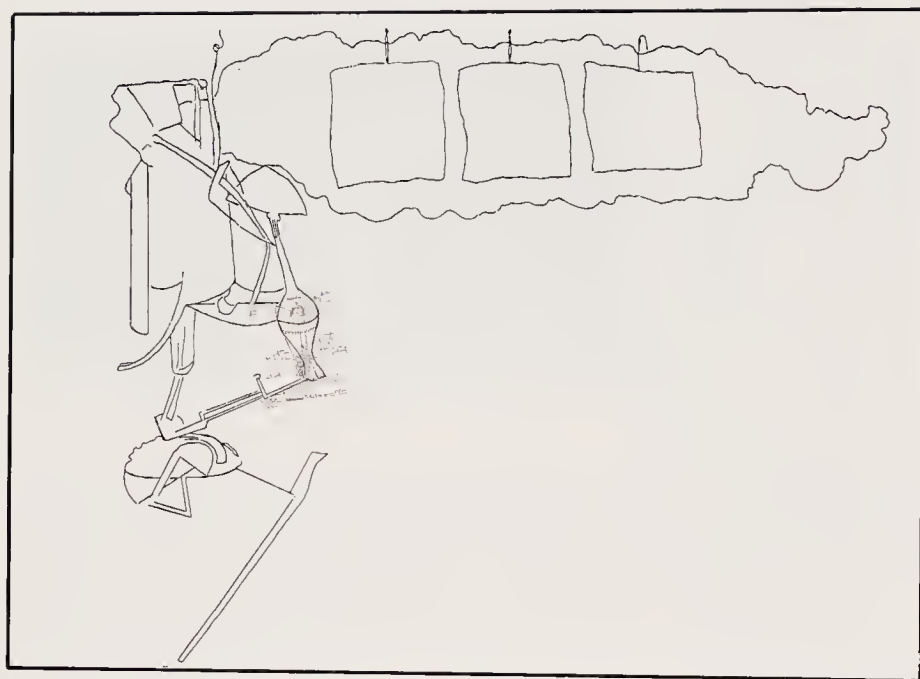


149. The female pendant with the diagram of the *Green Box* placed on top of it. The top, semicircular part is a kind of fixed head; the central cylinder contains the material of the threads, and beneath it would have been the wasp-sex and the weather-vane.



the sex-wasp after passing through the *magneto-desire*, now described as the 'regulator'. Or are we talking about the *eardrum*? To judge from Duchamp's added inscription, they are in the same place. A few lines later, Duchamp says, of the latter, that it 'absorbs the dew which the wasp spits out and acts as the pendant's wing around which the air flow increases'.⁴⁹

The *wasp* (also called the *sex cylinder*) (illus. 150, 151) must form part of the same mechanism and must be situated beneath the eardrum. In the definitive version, this corresponds to the lower part of the unusual protuberance at the base of the female pendant (the top half of the 'onion' would be the magneto-desire and/or the eardrum) (illus. 151). The note which accompanies the *Green Box* shows a kind of funnel with a few tubes for feeding in the gasoline of love through the lower part. The gasoline comes from a tank whose base is a layer of liquid from which the wasp extracts 'the necessary dose to water the eardrum and feed the thread material'.⁵⁰ The wasp's funnel turns as a result of the movements transmitted to it by the moving needle and thus also produces heat. We are now in the presence of the bride's autonomous centre; this is why Duchamp wrote that she had a 'centre-life', unlike the bachelors, who lived 'by [means of] coal or another raw material extracted not from their being but from their non-being'.⁵¹ The energy fluid which nourishes all of this machinery, 'the gasoline [or eau de

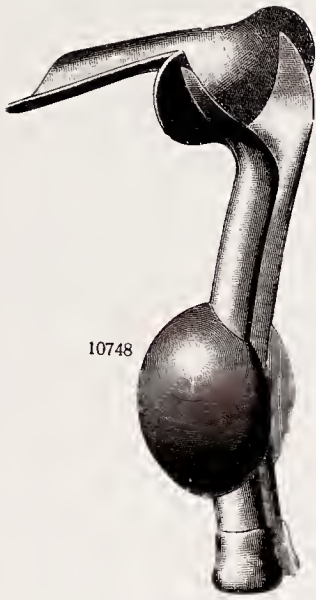


Cologne] of love', is a 'secretion from the bride's sexual glands', and its effect is complemented by 'the electric sparks caused by undressing her'.⁵² One might say, considering the characteristics enumerated by Duchamp, that the wasp is a *mélange* of sense organs, the lung, brain, heart and stomach⁵³ (of course, what we see in the glass is resembles the latter two); it is significant, as far as the work's thematic intentions are concerned, that the wasp overlaps with sex.

150, 151. The wasp or sex-cylinder would have been a mechanical entity similar to a funnel. By reducing Duchamp's drawing to a suitable scale, we can see its position, among what was finally produced on glass.

EVOLUTION OF THE FEMALE PENDANT

We have already seen, however, that the female pendant of the notes does not resemble the one in the picture of 1912, which was then copied faithfully on to glass. In its origin, the pendant is a metaphor for the interior of the bride's body, as if it had been organically dissected in some way. Duchamp borrowed many elements from anatomical plates, although I believe he was also inspired by the technology associated with gynaecology: the 'simple Auvard valve with a lead weight' which appears in the P. Hartmann catalogue of about 1910 (illus. 152) clearly resembles the



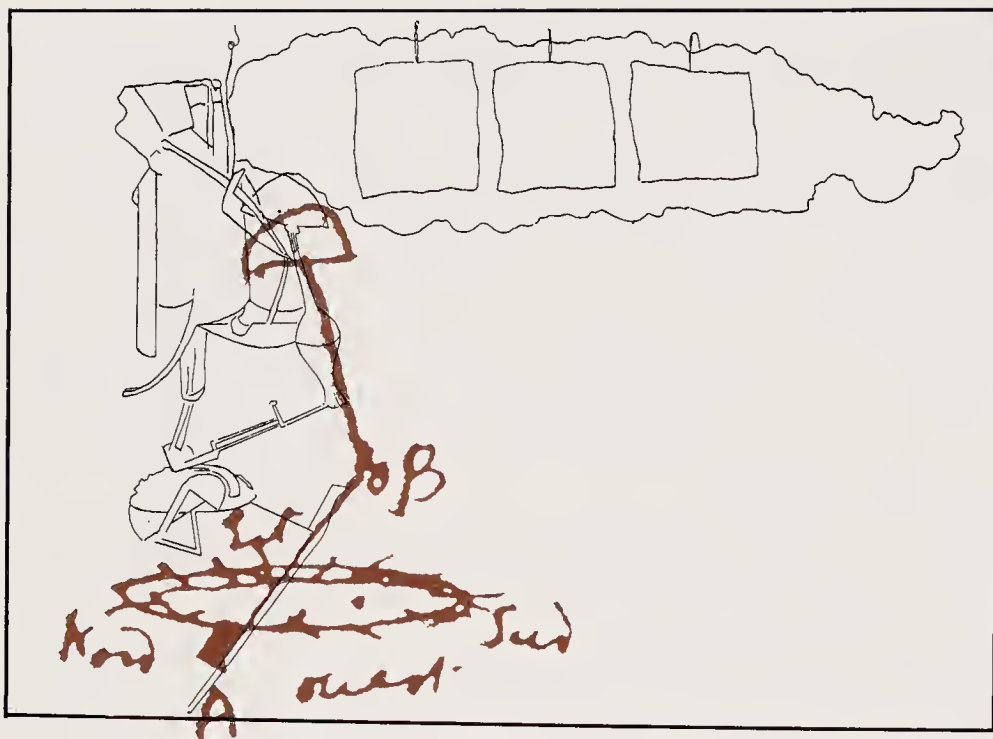
152. The simple Auvar valve with a lead weight, a gynaecological instrument shown in the P. Hartmann catalogue (c. 1911). It is just possible that Duchamp would have known about this (or other similar devices) and that this memory inspired him when he painted *Mariée*.

main element in the *Mariée*.⁵⁴ The upper part of the female pendant was to be of 'foaming metal . . . as in the first work done in Munich',⁵⁵ a description which points to Duchamp's having been inspired by this clinical contraption. We have already noted Marcel's contacts with the medical profession; through several members of his family or close friends, he could have known about apparatus like the one just mentioned, either first-hand or from catalogues. If our hypothesis is correct, Duchamp would have been speaking with notable precision when he alluded to his work of 1912 and the mixture of visceral and mechanical elements. It is also very interesting that he associated the female pendant with an instrument which, inserted into the patient, allowed an exploration of her genitalia.

The whole of this part of the *Large Glass* suffered, then, from a curious backwards and forwards evolution; in the beginning (the oil painting done in Munich), there were internal images of the body, with technical allusions which were relatively tenuous but very precise in their feminine implications (gynaecological instruments); in a second stage, Duchamp adapted the principal forms from the Munich picture to form a mechanism whose pieces possessed differentiated functions and articulation, explaining the form and purpose of each one of them in the combination of operations in the *Large Glass*. Finally, he decided to copy in the upper panel the essential parts of the 1912 painting, leaving open the possibility that we could attribute some of the functions of the 'mechanism' described in the notes in the *Green Box* to the painted 'organism'.

THE PULSE-NEEDLE AND THE WEATHER-VANE

The lowest part of the standard shaft is connected to the *pulse-needle*, a little rod whose lower extremity almost rubs against the bride's horizon. According to the *Green Box*, it had its origin 'in the centre-life of the bride', is mounted on a vagrant leash (*laisse de vagabondage*) and moves in the direction of the four points of the compass, vibrating and ventilating the sex cylinder.⁵⁶ The circular oscillation, like that of a compass or astrolabe, is best explained by one of the posthumous notes, where the point of the needle is presented in the interior of a graduated circle seen in perspective (illus. 153). What we have is a *weather-vane* or hoop 'made of chameleon metal' – that is to say, '... it changes to suit the orientation.' Its physico-chemical functioning would be the following: the wasp's air



153. A diagram of the pulse needle and the weather-vane (Notes, no. 144) superimposed on to the overall design of the *Large Glass*. This kind of ammeter, hygrometer or seismograph, together with 'kicks' in the circular ring (which is like a compass), would provoke the liquefaction of part of the chameleon metal.

crash would produce a kind of kick (*coup de pied de cheval*) against the needle, which would hit one of the graduated points in the weather-vane's circle; on contact with the hoof (*sabot*), a piece of chameleon metal would be melted 'which, as it turn[ed] to liquid, [would] also increase in volume when it [froze]'.⁵⁷

It is not clear what role these latter processes play in the globally interactive mechanism of the *Large Glass*. I suppose that we are dealing here with an idea which was never developed in an organic way along with the other movements described so far. However, there is room for another possibility. Is this 'expanded' liquid not produced directly above the mill wheel which moves the bachelor machine? And what if this were the real waterfall? In that case, the entire work would be a double circular metaphor: the bachelors undress the bride with their requests and provoke the secretions which make the moving needle oscillate, and this in turn kicks the weather vane, producing the cascade which moves the mill wheel, and so on. According to this hypothesis, the bachelors from below encounter the bride on their right (the area behind her body), and she encounters the bachelors on her left, where their non-heads are sex points. Or it could be that we can see the whole of the *Large Glass* as one extravagant, mechanical and laughable '69' (illus. 154). As we shall see, Duchamp made artistic use of the sexual implications of this number.

154. The *Large Glass* as a '69'.
Moving postcard from the
beginning of the century.



THE BRIDE, FEMININE INSECT

With this, the dissection of the bride comes to an end. Judging by what we have seen already, there can be no doubt that this entire part of the *Large Glass* has less technical/mechanical rigour than the bachelors' machine(s). Duchamp was aware of the different geometric implications of the two parts of the glass, and in a note in the *Green Box* said that the shapes in the lower zone (rectangle, circle, parallelepiped, hemisphere ...) were measured – that is to say, they maintained a relationship to each other, and a logic existed in respect of the 'destiny of the bachelor machinery'. In the bride, on the other hand,

the principal shapes are more or less large or small, since they cannot be measured in relation to their destiny: a sphere in the married woman could be of any radius (the radius given by the object is fictitious and perforated). With greater reason in the female pendant and the wasp, parabolas, hyperbole (or derived volumes) will lose all the character of a measured situation. The material representation will be no more than an example of each one of the principal liberated forms.⁵⁸

We could interpret this as a link with Duchamp's interest in the fourth dimension: we have already mentioned that Jean Clair identified the

bride's dominion as being associated with the liberation of the narrow world of three dimensions and gravity. But the decision to abandon the elaborate speculations of the notes in order to copy, without further ado, part of the 1912 oil painting indicates that the organic metaphors were gaining ground and that we are justified in interpreting this part of the work, taking the other codes into account, as more 'biological' than mechanical. Geometric liberation could be a way of speaking about human aptitude in which all forms lack the 'character of a measured position'. Duchamp made reference to this idea in several of his notes. The standard shaft, as we have seen, is a 'kind of spinal column';⁵⁹ he also thought that one should 'inject organic material into the wasp and other places'.⁶⁰ The female pendant has 'eyes' in its upper part, with 'a general shape which recalls the shape of the chocolate grinder (the head)'.⁶¹ Insects inevitably come to mind here. Henri-Pierre Roché, a great friend of Duchamp from the time when he created the *Large Glass*, said that '... the evil bride hangs in the firmament' and described her as 'a strange being, something like a dragonfly or praying mantis'.⁶² It seems obvious that such an interpretation came from Marcel himself, who told Lebel of a very significant nightmare which he had in Munich while he was painting *Mariée*: the latter was converted into an enormous insect whose back wings mercilessly lashed the young painter.⁶³ In addition, Carrouges pointed out that *mariée* is, in France, a common name for a moth.⁶⁴

We know that in Surrealism the mythical association between a praying mantis and a woman in love was very important: the creature which devours the male while making love was admired because it was an excellent representation of the tremendous power of love, with all its subversive and criminal implications (illus. 155). Legends also grew up around other insects whose sex life involved the inexorable sacrifice of the male, as in the case of bees.⁶⁵ But in the history of the artistic implications of some shocking episodes from natural history, the spectacular case of this great work on glass has not been considered. The ideal woman in the *Voyage au pays de la quatrième dimension* (we have already spoken about this) was known as the *Queen* 'in order to recall, by analogy with a colony of bees, the reproductive role she is destined to play'.⁶⁶ It seems that, for Duchamp and his friends, insects were an excellent metaphor for the inexorably mechanical nature of love (illus. 60) and could also aid in the avoidance of ancient 'transcendental' questions. So when Cabanne asked Duchamp about his belief in God, he replied that



155. The praying mantis devouring the male, according to Fabre.



156. Panels between two plates of transparent glass. This type of observation beehive, very popular at the beginning of the century, has changed very little. The one reproduced here was photographed in Xochimilco, Mexico, in 1991.

... it was a great act of folly to create the idea of God. I do not mean to say that I am an unbelieving atheist, but I don't even want to talk about it. I don't talk to you about the life of the bees on Sundays, do I? Well, it's the same thing.⁶⁷

In the photograph with the shadows of suspended ready-mades (c. 1918) which we looked at earlier (illus. 31), the profile of an insect, a dragonfly or mantis (just as Roché described them in *Mariée*) is clearly discernible.

The *Large Glass*, then, is also the permanent staging of a fabulous natural tragedy. In the lower part are found the drones of this incredible transparent hive, firing off their demands for love and waiting for the moment of their ritual death. It may be helpful to remember that so-called observation beehives were a popular form of educational entertainment when Duchamp was a child. They consisted of a rectangular panel (or two, one on top of the other, as in the 'machine' we are analysing), with each side covered by a sheet of glass, thus allowing an observer to contemplate the activities going on inside the colony (illus. 156). I believe that we should not underestimate the significance of this source when we come to explain the genesis and extraordinary evolution of the *Large Glass*. We know that the queen bee is elongated and of a size which is out of proportion to the workers and drones; of course, she is always the centre of attention for the owners of these flat, transparent hives.⁶⁸

The drama is even greater if we consider the *bride* as a praying mantis: she would be stuffing herself with her eventual lovers, decapitated in the malic moulds, since naturalists insist on pointing out that the female first

devours the heads of the males, who do not abandon their amorous activity until she starts to bite the lower extremities of their masculine bodies.⁶⁹

THE LARGE GLASS AS THE GRAVEYARD OF IDEAS

We have now traced the whole course of the gas and seen the function of the different mechanisms; this journey has allowed us to appreciate the way in which many of Duchamp's ideas were transformed, how some meanings were replaced by others or heaped on top of one another, making *The Bride Stripped Bare by Her Bachelors, Even* a kind of enormously suggestive semantic deposit. We have seen that nearly all of the artist's work is included here; he confirmed to Cabanne that he 'was collecting different ideas so that he could put them all together [in this work]'.⁷⁰ This is even clearer from another part of the same conversation:

P.C.: Every time you experienced something new, you included it in the *Large Glass*. So for eight years the *Large Glass* has been the sum total of your experiences.'

M.D.: Exactly so.⁷¹

But this does not imply the non-existence of a scheme or iconographic programme or the rejection of the normal laws which govern the movement and transmutation of bodies: 'The principle of gravity on which the whole picture is based', Duchamp wrote in a note,

is the unique Bridge of Good Sense, the only human control on each of the parts of the picture; this principle of gravity finds its graphic expression in the linear systems used: normal perspective (within the reach of any mind).⁷²

There is therefore a logic and a lesser 'relaxation of the laws of physics and chemistry' than what has been assumed since Breton emphasized the importance of this annotation from the *Green Box* in his article 'Phare de la mariée'.

In order better to understand the conflict which might exist between apparent subjugation to a few principles and their dissolution, we must recall a point mentioned earlier. Duchamp repeatedly confirmed that the *Large Glass* would be accompanied by a complementary booklet and, in this connection, talked about the Sears Roebuck and Armes et

Cycles de Saint Etienne catalogues. All of this suggests, among other things, that we should consider Duchamp's great project as a bringing together of disparate machines and utensils, a kind of store or cemetery of contraptions, united by their presence in one place (the 'catalogue') and not only by the nature of their mechanisms or respective functions. I believe that this provides a clear justification for studying the relatively disparate parts, as we have done so far. Something else to bear in mind is the fact that the *Large Glass* can 'be dismantled' (that is why it was broken when it was moved from the Brooklyn Museum in 1926) like the *Etant donnés*; this makes us think again about the characters in *Impressions d'Afrique* who display their inventions at a competition organized as part of the coronation celebrations for Emperor Talou VII. They are all exhibition machines, although in this case they are shown (perhaps) merely for their outward appearances. When Schuster asked him if the *Large Glass* was a rough sketch for a moving construction, Duchamp answered: 'It's like the bonnet of a car. The thing that covers the engine.' And he said that the engine was invisible, just like 'the true shape of the female pendant'.⁷³

TOWARDS A PSYCHOANALYSIS OF THE MACHINE

What was he really talking about? Or, to be more precise: what are the thought processes which allow us to understand the work's apparent contradictions? I believe that it is necessary to recognize everything in Duchamp that is a tender homage to, and ruthless satire of, Hegelian dialectic. This becomes obvious when we re-read some of the copious notes in which he demonstrated an interest in methodology. In one of them, he proposed the graphic development of '1st: expansion of the undressing by the bachelors / 2nd: expansion of the imagined undressing of the nervous bride / 3rd: Of the three graphic developments obtained, find their reconciliation, which must not include expansion without a specific reason'.⁷⁴ This desire to resolve graphically a movement which is both physical and psychological is fascinating. We have already seen that the dialectic synthesis between two different ideas usually consists, in the *Large Glass*, of a replacement of previous mechanical and visual designs, while at the same time preserving 'through transparency' some (or all?) of the initial functions and meanings. We are here only one step away from the Surrealist multiple images and paranoid critical method developed later on by Salvador Dalí. The note 'Principle of contradiction',

dated 1914, might be important in this context, since it contains a critique of ordinary logic and strives to overcome apparently irreconcilable opposites:

... understood in this way, the principle of contradiction demands ... the immediate opposition of concept A to its opposite B ... but even thus the principle of contradiction remains constant – that is to say, still opposes the two opposites. In essence, it may contradict itself and demand: 1st: either a return to a logical sequence which is not contradictory ... 2nd: or the return of the contradiction itself, to the formulation A opposing B, no longer as an opposite of A, but different (the number of Bs is infinite, as the combinations in a game without rules): after having multiplied B to infinity, the formulation of A remains disallowed (the A theorem has not yet been formulated nor can it be). Speech frees us from definition and ideal meaning.⁷⁵

It is fitting, therefore, to think of the more than probable influence of Alfred Jarry, whose *Gestes et opinions du Docteur Faustroll pataphysicien: Roman néoscientifique suivi de Spéculations* was published in Paris in 1911. Duchamp must have read this book with great passion. We know that Jarry (like Raymond Roussel) was an intellectual father-figure for him. Some fragments from *Docteur Faustroll* provide interesting clues: '[Pataphysics] will study the laws governing exceptions and explain a complementary universe.' Or, more specifically: 'Pataphysics is the science of imaginary solutions that symbolically bestows on configurations the properties of the objects described by virtuality.'⁷⁶ Duchamp echoed Jarry's concept many years later when he invented the word patautology. 'All this nonsense', he wrote,

about the existence of God, atheism, determinism, free will, societies, death etc. is nothing more than pieces in a game of chess ... As a good 'nominalist', I propose the word 'patautology' [to indicate] that, by constant repetition, the concept which I was attempting to express by execrable means such as: subject, verb, complement etc. will be created.⁷⁷

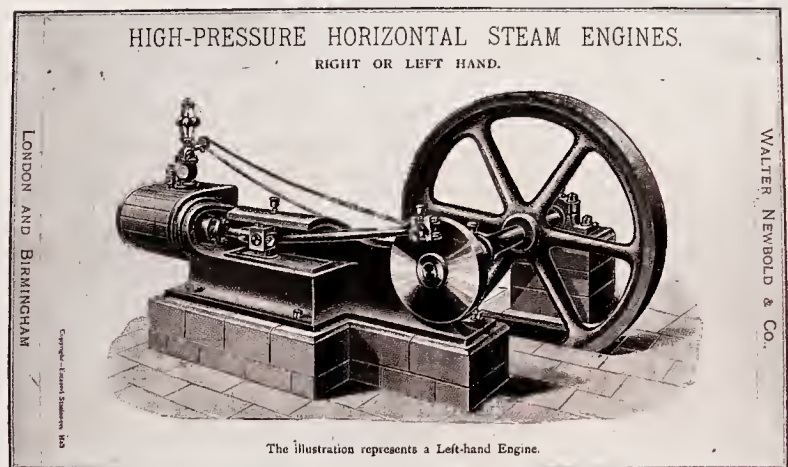
It is not now a question of unravelling, from a rigorously academic perspective, the possible fallacies in Duchamp's proposals. But I think that it is important to point out that the *Large Glass* is incomprehensible unless we bear in mind that a *different* system of thinking permitted the invention of mechanisms whose assembly was not produced by collision and the transmission of their movements in a homogeneous physical environment, but by the superimposition of concepts and slippage towards what we may call 'areas of proximity'. The jump from

one idea to the next occurs by means of a poetic logic related to the psychological processes described by psychoanalysis without losing sight of the machines' and chemico-physical apparatuses' real functions. The emergence of an idea, in this instance, would not so much reveal the interests of the author as the plausible unconscious workings of the technique. This is one of the sources of his dark humour: it is as if a mechanical entity were to dream of the possible functioning of other similar machines. We seem not to be confronted with the 'relaxation' of laws intended for human consumption,⁷⁸ but rather with a self-reproducing mechanism, nonsensical, internally *consistent* and admirably suited for subject matter which has been proposed for adaptation for the stage.

Displacement towards 'areas of proximity' is found in nearly all of the notes. When Duchamp wrote '... this part I want to change then the state of the steam-operated machine passes to the stage of a combustion engine',⁷⁹ he is giving us an example of the type of metaphorical transmission which makes the functioning of the *Large Glass* possible. Consequently, it is possible to complete the awakening of the love-making mechanism, as we already have done, with the examination of other processes, contraptions and intellectual operations implicit in the work. And in the same way as psychoanalysis attempts a critical comparison between the unconscious and the real past, a psychoanalysis of this machinery must imply a comparison between certain authentic utensils contemporary with its genesis and those described or represented in the notes and/or on the glass itself. Let us have a look at a few more objects connected with all of this.

A BOILER, A MOTOR, AGRICULTURAL MACHINERY

In the *Green Box*, Duchamp referred to a 'steam machine with a brick-work plinth',⁸⁰ but there is no reason why we should understand this as a reference to locomotives. In the 1890s and 1910s, small-sized steam engines were very popular; the majority were usually fixed on to and supported by solid foundations (for example, those advertised in the James Lefeld catalogue), but there were also other, mobile models which moved on wheels, some of which were manufactured by Walter Newbold (illus. 157, 158). If the bachelors' machinery was imagined along the lines of one of these devices to begin with, we must assume that the bride's 'expansion' – the cloud in the upper zone – would have been



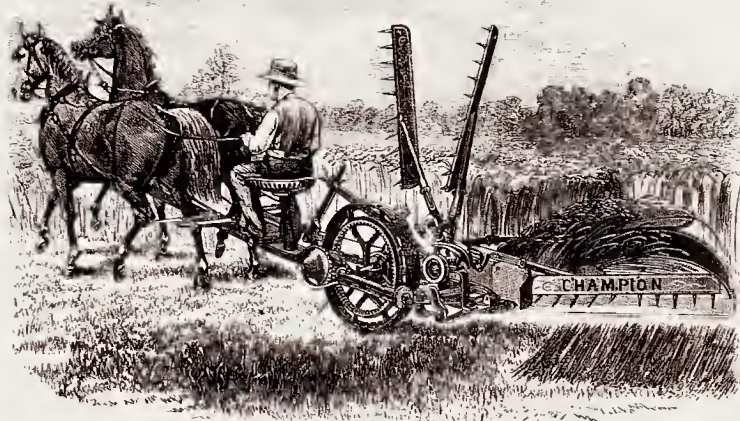
the final figurative memory of the smoke and steam produced in the lower zone.

Something less hypothetical survived from all this: I refer to the idea of the hollow 'moulds' which produce a gas, which, when properly channelled, moves the whole complex mechanism. This conceptual movement would have been made easier because the steam boiler is also, let us remember, a closed metallic receiver which contains the 'water gas' under great pressure.

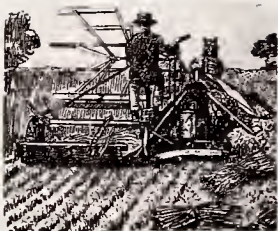
As we have seen, two industrial processes merge which differ greatly from each other, but which are integrated by pataphysical proximity into the mechanical universe of the *Large Glass*. One of these involves the moulds used in the manufacture of objects, preferably of glass (illus. 97). The other is the process associated with the retorts used for obtaining gas from coal and coke (illus. 98). Moving on from this concept, we can conceive of this part of the bachelor machine as if it were a gas turbine, along the lines of those produced by Lenoir after 1860 (illus. 158). As we have seen, none of this excludes the latent idea of the dummies, which are also, in their own way, 'moulds' for making uniforms and liveries.

In the *Green Box*, allusion is made to the 'agricultural machine' and 'farming implement'.⁸¹ Although this 'machine' has not attracted much interest in studies of Duchamp, it must have been important at one time, since it was intended to appear in the title of the work: 'Another definitive title: The bride stripped bare by her bachelors even (agricultural machine)'.⁸² For want of a better explanation, it occurs to me that there is a certain similarity between the appearance of certain agricultural machines and the bachelors' apparatus. Some harvest machines from the beginning of the century consisted of bladed wheels and a light frame

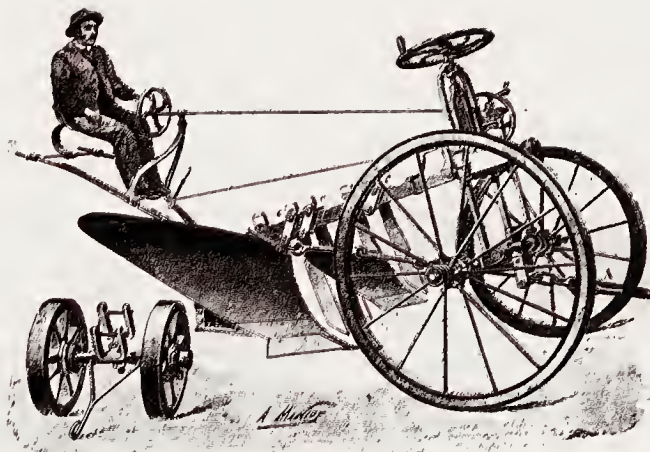
157, 158. A steam boiler mounted on a movable carriage and a horizontal, high-pressure motor (from the 1891 Walter Newbold catalogue).



(they were normally pulled by mules or horses) and closely resembled the ones seen in the *solipsistic machine* (illus. 159–61). It is also instructive to look in specialist books of the time at illustrations of rotovators, mouldboards, harrows, etc. Normally, these objects are shown in a state of alarming industrial cleanliness, worlds away from rustic reality; the masculine operators resemble hollow dummies (like the malic moulds) floating in near-weightlessness (illus. 161).⁸³ The idea of the agricultural machine, as in other cases, would have come to the *Large Glass* as a consequence of an icon / concept ‘slip’: unexpected similarities of form provoke the invention of a new function or allow us to fantasize about one. The difficulty involved in integrating this new meaning into the general argument would have been a determining factor in its complete abandonment.



159–61. Of the various kinds of agricultural machines, this is the ‘Champion’ harvester from the *Historical Register* of the 1876 Philadelphia Exhibition, and an illustration from the school-book *Leçons de choses*. The great rotovator with the operator sitting on top, as if floating in mid-air, is from the 1907 Coupan technical brochure.

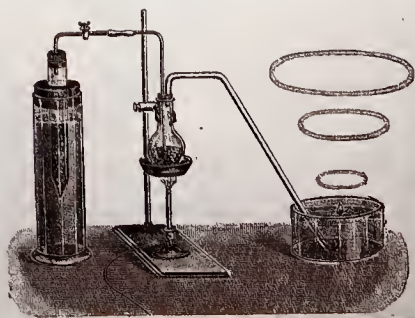
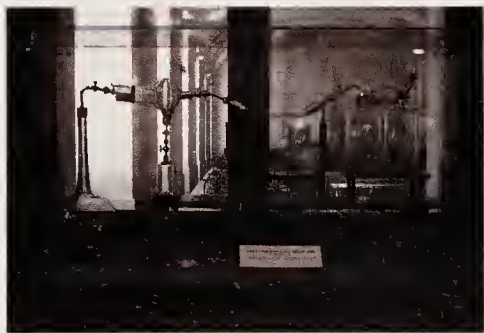


CHEMICAL APPARATUS

In everything we have said so far, we have laid considerable emphasis on the mechanical dimension, but have made only occasional references to the chemical apparatus contained in the *Large Glass*. However, the latter interested Duchamp very much, as can be seen from annotations such as: 'Picture or sculpture. Smooth receiver of glass [which receives] all kinds of coloured liquids, pieces of wood, iron, chemical reactions. Shake the receiver and look through the transparency.'⁸⁴ Transparent glass utensils in which observable reactions are produced are typical laboratory furniture. It is just possible that the journey undertaken by the gas (and its multiple transformations) may be a metaphor for the old Lavoisier chemical principle, taught in all French schools when Duchamp was a boy: 'Matter cannot be created or destroyed, only converted.' In Duchamp, we find a curious negation of entropy: the initial energy of the bachelors neither disappears nor diminishes during the journey, but continues to change its nature, as happens with organic decomposition studied in experimental flasks causing gases and residues to produce heat, etc. It is not beyond the bounds of possibility that among these sources of inspiration for the *Large Glass* were apparatuses similar to those used by Lavoisier for his study of the fermentation of grape juice. The originals, now in the Musée des Arts et Métiers de Paris (illus. 162), were reproduced in many books; Duchamp could have seen them in either place.⁸⁵

An even greater similarity exists between the bachelors' machinery and the stills used in the production of distilled water; vapour is conducted along cooling tubes which descend in a spiral (like the helter-skelter of the bachelor machinery) down to the lower zone, where the desired product is collected. The illustrations in contemporary textbooks and school manuals accentuate the similarity even more (illus. 117). In fact, there were a great many chemical apparatuses which vaguely resembled the latter one; Duchamp's debt to them was tacitly recognized

162. 'Matter cannot be created or destroyed; it can only be converted': Lavoisier's apparatus for studying putrid fermentation (Musée des Arts et Métiers, Paris).



163. Apparatus for obtaining phosphamine, from an old chemistry textbook (J. Mir, 1912). It has to do with the substance originating from *ignis fatuus*, which is produced spontaneously when brain tissue decomposes in corpses.

in the works of Max Ernst and the apparatus of Dalí. A very curious piece of equipment is the one designed for obtaining phosphamine, the illustrations for which show phosphorescent gases ascending and forming circles, seen in perspective, and producing an effect similar to that used with the splash and the opticians' charts (illus. 163).⁸⁶

ELECTRICITY AND THE TELEGRAPH

The production of gas makes us think of other things, such as Bunsen burners, linked together for greater effect (illus. 99). Although we have already spoken about this, it is necessary to say one or two more things about the enormous importance of electricity in the general mechanism of the *Large Glass*. Duchamp associated this physical agent with the sex drive: in the decomposition of the bachelor machinery, he mentions 'dynamo-desire' and, in the bride's, 'magneto-desire'.⁸⁷ The relationship between the two poles is neither tactile nor optical, at least in some of the preliminary notes:

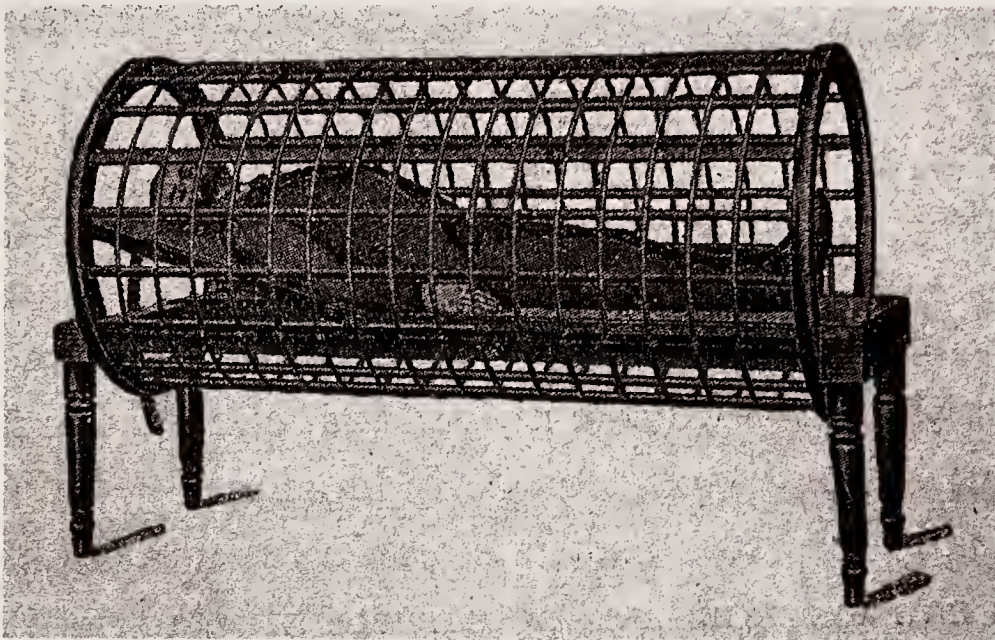
In spite of the cooler, there is no continuity solution between the bachelor machine and the bride. But the links will be electric and will thus show the disrobing; an alternate operation. Short circuit if need be.⁸⁸

In fact, the key moment in the whole representation, reflected in the title – the undressing of the bride – occurs thanks to (or as a function of the production of) electricity: 'This electric undressing is the most important expression of the sparks of her life of constancy in the picture (in this picture/moment in the life of the bride)'.⁸⁹ Duchamp also speculated about the possibility of creating a background of electric lights, looking like a fair-ground, which he would probably have placed behind the glass and a certain distance away from it;⁹⁰ although he does not appear to have developed this idea completely, we have the impression that there is something of the machine, apparatus or weird fair-ground contraption in the *Large Glass* as it was exhibited.

The fascination with electricity and its mysterious powers was not, of course, exclusive to Duchamp: Walt Whitman extolled the 'electric body' in one of his most passionate poems; *Eve of the Future* by Villiers de L'Isle Adam was, as we have seen, a woman created by Edison's electric genius; the case of Marinetti and the Futurists is well known;⁹¹ in 1920, before the *Large Glass* had been completed, Breton and Soupault wrote *The Magnetic Fields*. And if highbrow literature criticized the impact of this physical agent, its



164. The body being 'electrified' for therapeutic purposes, from the P. Hartmann catalogue (c. 1911).



165. A large solenoid taken from the F. Illana booklet: the human body is placed inside an 'electric tube' but does not come into physical contact with the thick conductor wires.

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... it is an agent, still unknown, which reveals itself to us through the phenomena which it produces. The most important of these phenomena are: attraction, organic commotion, chemical combinations, luminous and calorific effects, etc.⁹³

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THE NO-NUSS CURE—matters how obstinate, how loose standing. Will cure any case, no
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and cure of the peculiar diseases of men. For those sexually weak or impatient or suffering from any
trouble of the sexual organs the **Glent No-Nuss** gets them started right where everything has fallen
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the world of popular iconography. In all cases, it

city with the forces of love, considering first and

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the most subtle and strangest physical agent,'⁹²

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city; we can see electricity as a result, but we cannot

At a physics teacher of mine always used to say that it is not the quantity of knowledge that is lost, everyone is

electricity. No one can say what it is, but everyone is reduced. The same can be said of art. It is a kind of

duces. The same can be said of art . . . It is a kind of

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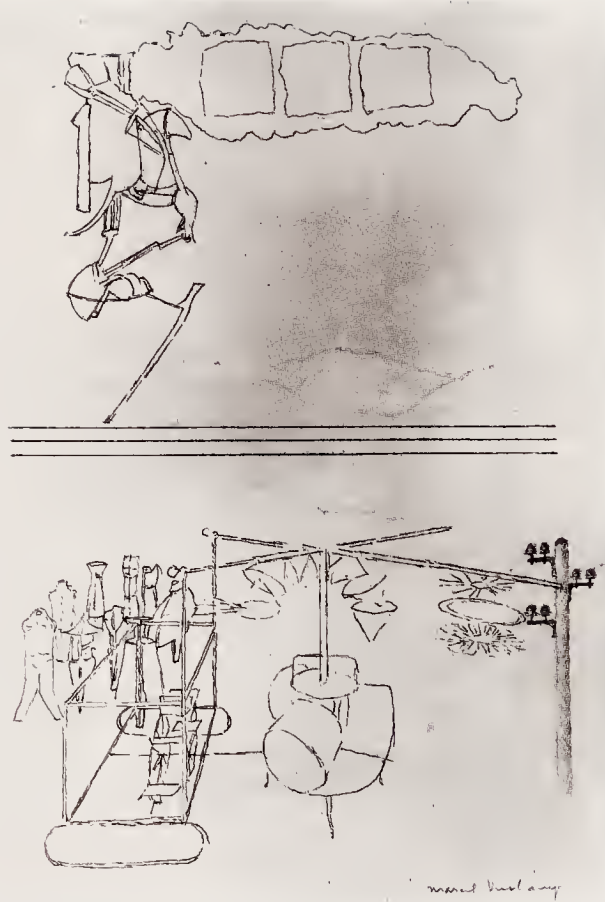
inner current in a human being, or something which needs no definition. The first definition is unnecessary.⁹⁴

There are certain therapeutic techniques connected with all of this: the human body could be regenerated by the application of electric current. In the case of Dr Schnee's bath, for example, the four extremities were placed in small containers with positive or negative charges, thus producing electric currents throughout the body (illus. 164).⁹⁵ It is also useful to mention solenoids here, those enormous copper coils which formed a kind of tube inside which the patient's body was placed in such a way as to avoid all contact with the metal (illus. 165). The patient, in this case, was cured by the 'magnetic field' created inside the tube. Eventually, all of this gave rise to the electrobiological iconography of *Metropolis* or the different versions of *Frankenstein*. In bodies submitted to this form of treatment, it was not easy to distinguish between what was natural and what was mechanical, and this might have stimulated the invention of all these 'electric' metaphors by artists working around the turn of the century, including Duchamp.

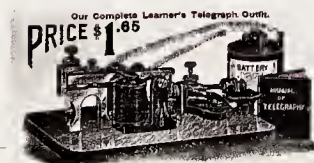
Official medical technology spawned a multitude of popular products and gadgets which were claimed as panaceas for problems of biological deficiency. In 1883, 'Dr Scott's electric corset' was advertised as a means to greater attractiveness (illus. 166, 167) and as beneficial for any infirmity.⁹⁶ It was said that 'Dr MacLaughlin's electro-energy' would 'revive exhausted men because it is electricity and *electricity is life*; just think of it as gasoline which will get the essential parts of the engine (i.e., the body) moving'.⁹⁷ In the 1902 Sears Roebuck catalogue, there was an advertisement for an 'Electric Liniment', an infallible treatment for rheumatism, various types of pain, wounds, problems of the chest and throat and so on. Even more interesting is the 'Giant Power Heidelberg Electric Belt' to the normal characteristics of which were added the power to increase virility (illus. 167).⁹⁸ The association between sex and electricity went a long way; one of the five chapters in *Traité d'électricité galvanique* by Dr L. H. Grard, according to a 1936 advertisement, was dedicated to men and women's 'urinary apparatus'.⁹⁹

It is not so surprising, then, that electricity should play such an important role in the mechanics of sex as understood by Duchamp. It was a 'mysterious' agent which produced its effects 'by remote control'. Is this not a perfect way to refer to the relationship between the two parts of the *Large Glass*? There are also subtle connections here with the telegraph and telephone. In the *Box of 1914*, there is a note mentioning the hypothetical telephone link between dismembered bodies:

168. Duchamp added a landscape and telephone cables to the *Large Glass* in his drawing *Cols alités* (1959; Collection J. J. Lebel).



169. A Morse tapper with its instruction manual advertised in the 1902 Sears Roebuck catalogue.



Against obligatory military service a 'removal' of every member away from the heart and other anatomical units; without every soldier being able to put on a uniform again, and with the heart nourished by telephone, a 'removed' arm, etc. In addition, no more food and every 'removed' part becomes insulated. Finally, there are rules governing the nostalgia between the removed parts.¹⁰⁰

This idea might have played an important role in the *Large Glass*, where we see members feverishly separated from the bride and bachelors; we also have the 1959 drawing *Cols alités* (illus. 168), in which Duchamp completed the general profile of the work by adding a background with mountain scenery and a telegraph pole to the right; all this lent a naturalist content to the difficulties (and possibilities) of the connection between the bride and the bachelors.¹⁰¹ The job of 'deciphering' orders or requests from the bride and/or bachelors fell to telegraphy, which at the beginning of the century, was a more frequently used medium for conveying messages over long distances than the telephone. It is not

impossible that Duchamp may have been inspired by Morse tappers, which could be seen everywhere and were advertised in many commercial catalogues (illus. 169).¹⁰²

OPTICAL METAPHORS

Optics, another branch of physics, was also put to use here. Once again, we must recall all that has been said about opticians' charts or ophthalmic witnesses, the Wilson-Lincoln system or the magnifying glass, but we must insist on one fundamental idea, expressed with great clarity by Duchamp himself: 'In the Bachelor Machine, an erotic desire in action is seen "carried" to its "projection" of mechanized appearance and character.'¹⁰³ For this reason, it was important to ensure that the work would be viewed from some of the elements' correct perspective, so their hypothetical position in space had to be determined with great precision.¹⁰⁴ It might also be said that the whole of the *Large Glass* is a commentary on the paradoxical and arbitrary nature of 'correct' visual representations: in a note which we have already mentioned, there arose the possibility that any outlandish configuration could acquire sense when viewed from a specific angle.¹⁰⁵ Another fragment from the *Green Box* suggests the same thing: '... the figure obtained will be the projection (skilful) of the principal points of a three-dimensional body. With maximum dexterity, this projection will be reduced to one point (the lens).'¹⁰⁶ It apparently amused Duchamp to discredit the idea of realistic representation in this way, and it is strange to note the similarity between this optical fantasy and the one which governs the principal mechanisms of the *Large Glass*: in the first instance, an 'unmultiplied' representation would be reintegrated into a new global view which determined the precise angle of



170, 171. Illusory movement of 'ghostly' figures, using mirrors and transparent glass, was a useful theatrical technique. The two illustrations shown here are taken from the Bellet book and Hopkins' specialist encyclopaedia.

observation; in the second, some separated members (pieces) would come together with electric or telephonic connections etc.

Another optical aspect connected with the 'infrafine' is that associated with the shadows which are so important in all of Duchamp's work. The *Large Glass*, in fact, projects them on to the floor or whichever object or person happens to be placed behind the glass. Duchamp thought that he would be able to position the glass some distance away from a kind of screen:

When working on the glass, give a white background, not too far away, and let it throw shadows which will allow a sculptural reconstruction. (Rather, place a white object quite close to the glass, and let it receive the shadows thrown from certain parts of the glass).¹⁰⁷

This placement would have accentuated the sensation of things painted on the glass floating in space and would have increased the view of the bed 'in relief' that we had when we were considering the ready-made *Apolinère Enameled* (illus. 24). But the most interesting thing is that it solves the great contradiction of *The Bride Stripped Bare by Her Bachelors, Even* by pataphysical translation: we do not know what supported the malic moulds, the filters or the ophthalmic witnesses, nor what the bride was suspended from; these 'mechanisms' cannot function in this manner when we imagine them obeying the normal laws of gravity, but they can do so in the immaterial universe inside the glass through which light passes. What is impossible in the realm of solid-body physics is feasible in the realm of optics. Ultimately, the eye solves the problem of weight since it can experience reality as a mere shadow or phantom. Let us remember that among the pseudo-scientific recreations of the epoch, to which we have already referred, were the luminous projections of real or imaginary entities and the optical transfer to a given space, by means of glass, of illusory floating figures (illus. 170, 171).¹⁰⁸

LOVE AND THE FOURTH DIMENSION

This look is not that of the retinal painter, but that which activates the springs of reason: it seems obvious to me that the optical problem of the *Large Glass* is connected with n-dimensional geometry. Duchamp admitted that he was interested in all of this and in one of his conversations with Cabanne stated:

In the same way that I realized that a shadow could be projected from a three-dimensional object ... I thought that by simple intellectual analogy the

fourth dimension could project a three-dimensional object or, to put it another way, that any three-dimensional object, viewed coldly, is the projection of a four-dimensional object of which we are unaware . . . With this in mind, I based 'The Bride' in the 'Large Glass' on a projection of a four-dimensional object.¹⁰⁹

There are many notes (especially in the *White Box*) dedicated to this question.

I believe that here Duchamp did nothing more than seize and develop those ideas which were being passed around the Puteaux circle. In the little book *About Cubism* (1912) by A. Gleizes and J. Metzinger, there are many ideas which the young Marcel adopted: blaming Courbet for the 'retinal' evolution of modern painting, affirming the intellectual dimension of art, being interested in non-Euclidean geometry (Riemann is mentioned), etc. 'Our own personality,' they wrote,

on contraction or expansion, transforms the plane of the picture. And as, when it reacts, the plane refracts our personality on to the observer's understanding, we have to conclude that pictorial space is defined as a sensitive step between two subjective spaces.¹¹⁰

As we saw when we examined the ready-mades, Duchamp was obsessive about this theme; a relatively late theoretical formalization of it would be developed in 'The Creative Process' (1957), according to which a work of art is a bi-polar activity, and every design must be completed by observers.¹¹¹ Even more interesting is the erotic, tacitly burlesque gyration which Duchamp added to the 'two subjective spaces'. The mathematical fourth dimension also helped him in his metaphorical allusions to the 'vehicles' of love; it is by no means certain that such use was to the liking of the orthodox Cubists who were friends of Marcel's elder brothers. The *journey* described by Pawlowsky is, in the *Large Glass*, that of the hallucinatory gas on its way to the elevated spot (the supreme dimension) where it meets the coveted bride. Perhaps this is an appropriate time to recall the assimilation between the gaseous state and the hyperdimension described in Bragdon's work:

The expansive force of the gases would be due to some similar influx from the region of the *fourth* dimension, and the amount of pressure exerted by a gas would be a measure of four-dimensional extension . . . the capacity of a gas to expand comes thus from a four-dimensional world.¹¹²

Duchamp himself spoke at considerable length on these matters. When answering a question posed by Serge Stauffer, who was attempting

to confirm Lebel's statement about whether or not '... the erotic act is a four-dimensional situation par excellence,' he wrote a letter dated 28 May 1961:

Without using such words, this is an old idea of mine, a cherished idea, explained by the fact that a tactile sensation involving all sides of an object *approximate* a four-dimensional tactile sensation, since of course none of our senses has a four-dimensional application, except perhaps the sense of touch; consequently, the act of love-making, as tactile sublimation, might give us a glimpse of, or a feel for, a *physical* interpretation of the fourth dimension.¹¹³

He was obviously speaking metaphorically, as there seems to be a connection with what he said to Schwarz:

Sex is three-dimensional and four-dimensional. There is nevertheless a further expression of sex that can be transferred to the fourth dimension. But the fourth dimension is not sex as such ... Sex is sex.¹¹⁴

In any case, all this does not happen on the glass, but appears to be shown there as if it were a geometrical section, a very fine transparent slice, of a *continuum* of three or four dimensions.¹¹⁵ Duchamp gave us to understand this from some notes, and so in the *White Box* we read:

The plane of the glass is a comfortable way of conveying the idea of infinity in 3 dimensions. This is the plane in which infinity is to be detained ... Speaking incorrectly, the line which appears to be held in the glass plane should limit itself to crossing it and continuing into infinity along its three-dimensional continuum.¹¹⁶

This supposes that the *Large Glass* is, more than any Renaissance painting, a window or perfect cross-section of the visual pyramid.

ANATOMICAL DISSECTION AND X-RAYS

'Crossing the plane' equates to passing through exterior reality. Although Duchamp said that the real mechanism was mysterious, we know that the Munich *Mariée* is a 'visceral' entity. This obliges us to consider the theme of undressing as a linguistic veil which hides other meanings, in particular that of dissection. If the lower panel shows the exterior of a mechanism (the bonnet), the upper one reveals the organism's interior. One could say that the observers, from outside, are seeing part of what happens inside the bride's body: organs of desire, transmission of nervous impulses, organic contact with the bachelors' discharges, etc. The notion of the observation beehive is not incompatible with vivisection. It is just possible, therefore,

that the bride-glass has a long genealogy going back at least as far as Vesalius. The title page of his *Humani corporis fabrica* (1543) shows a woman with her stomach cut open in the middle of a dissecting room filled with men of all ages and from all walks of life who gaze with amazement at the structure of her innards (illus. 236). The convention used in all later anatomy textbooks appears here: to present many organs in a kind of forced perspective so that the observer can get a better idea of what they look like. In actual fact, these diagrams do not show the body's interior as one would see it if it were transparent, but as a hypothetical student would recognize what he or she had previously studied in a book (illus. 172, 173). As some layers of tissue cover others, it is necessary to cut and separate, fold and move some organs. The result is that although they appear to present 'interior form', these plates exist halfway between the graphic schematization of what can be seen and a functional description. They are neither retinal painting nor topographical map, but something special and more arbitrary than they appear to be at first. There can be no doubt that Duchamp saw many anatomy books, not only because they were considered an essential part of all artists' education, but because of the constant presence of doctors among his friends and relatives.¹¹⁷

Or it could be that the bride (in addition to what has already been said) is a fragment of a working body, seen from inside. One might call her a collection of tendons and viscera, or their mechanized equivalent. Through slippage or figurative metathesis, the latter can assume something approaching the appearance of certain gynaecological instruments, as we saw in the case of the 'simple Auvard valve with a lead weight' (illus. 152). This same process of reciprocal contamination between images and meaning leads us towards something which fascinated Duchamp's contemporaries and which can be seen in his work: X-rays (or Roentgen rays). An early writer observed that '... the most important and original property of X-rays is to pass through almost all bodies and succeed in making them transparent,' and it was interesting that there was a strong possibility of seeing the interior of a female body even though some parts of it were not 'undressable'.¹¹⁸ The transparency of organic material subjected to electric radiation transcends the bounds of modesty. Woman-mantis, visceral mechanism. Here, we have something which makes it useless, as its creator might have said, to speak of the life of bees on Sunday.

Duchamp wrote: 'X-rays (?) the infrafine, transparency or cross-section'¹¹⁹ and also 'the cross-section of a plate and transparency and X-rays and the fourth dimension'.¹²⁰ This interest is not all that surprising, given his friendship from childhood with Dr Ferdinand Tribout, the



172, 173. The interior of a female body in two of Vesalius' plates. The cross-sectioned uterus with two triangular halves is somewhat reminiscent of the wasp associated with the female pendant (illus. 151).



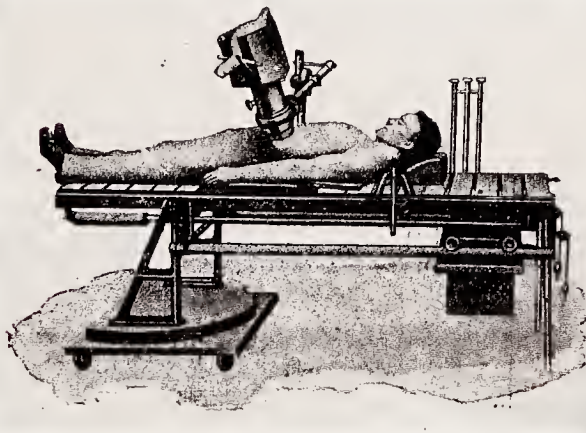
famous pioneer of radiology in France. Also, Raymond, one of Marcel's brothers, was a medical student and may have shown him some of the applications of the revolutionary technology.¹²¹ I believe that Emmanuel Rudnitzki adopted the name of Man Ray on account of its Futurist connotations. Is it pure chance that rayograms should resemble radiography both in their effect and their technology (illus. 176)?

X-rays can be considered as a metaphorical bridge between an organic entity and the mechanism of *The Bride Stripped Bare by Her Bachelors, Even*. We should remember that patients (their inner organs) were seen and photographed after being placed on a kind of flat table: the multiscope. This resembled authentic panels of organic projection or an ideal means of examining internal anatomical complexity (illus. 174-6). It could be said with a certain degree of truthfulness that an X-ray taken of a body during love-making is an instantaneous photograph of the fourth dimension ...¹²²

174-6. X-rays fascinated Man Ray and Duchamp because, thanks to them, it was possible to speculate on the transparency of four-dimensional bodies. In these images, taken from Illana's booklet, one can see the Strauss multiscope (vertical and horizontal) and the X-ray of a human torso.

MUSICAL MACHINE

The *Large Glass* was also intended as a musical machine. Duchamp talked about 'doing the undressing with a piano accompanied by the three great crashes and the childhood memories of the lighting gas'.¹²³ And here is another tremendous metaphorical slippage. As the filaments which lick the ball of the gravity regulator move in and out like a paper serpent and the whole thing resembles a table, it is compared to a piano: the undressing would be accompanied by an uninterrupted rise and fall along the musical scale. The crashes would have to be those defined in *Buridan's Donkey*¹²⁴ and/or the three crashes of the marble in the *boxing match*,



depending on the stage of the project at which we might wish to include the idea of the music.

Let us imagine that Duchamp's entire mechanism is functioning with some (or all) of the possibilities foreseen in his notes: the gas comes out of the malic moulds, solidifying and fragmenting in the capillary tubes; it is filtered and oriented in the sieves and then falls in a spiral causing the splash; the mill-wheel turns; the glider advances and retreats, opening and closing the scissor blades and partially turning the rollers of the chocolate grinder; the glider might also move around the grinder (or vice versa); the gas ascends optically through the centre of the ophthalmic witnesses; when the boxing match starts to operate, the bride's dress falls down and sparks are produced as she is undressed. The whole organism hanging from the upper part oscillates (or, rather, vibrates), and the needle moves in a circle towards the cardinal points. Meanwhile, notes played up and down the piano keyboard can be heard, without interruption, in time with three drumbeats or petards sounding at regular intervals. To this musical interpretation I would add the periodic sound of a wooden rattle (this is mentioned in the notes, although we do not know how it would have been integrated into the general mechanism),¹²⁵ the monotonous repetition of the bachelors' litanies (like the murmur of the rosary at vespers in some remote village church), the sound of the chocolate grinder, the fall of the water into the blades of the wheel, the thud of the bottle, an imperceptible whispering of gas or vapour . . .

Described thus, the functioning of the *Large Glass* is plausible, above all if we help (or correct) it by means of intellectual and manual activity. We can resolve the project's insurmountable contradictions, as we have seen, through pataphysical logic, figurative slippage or icono-mechanical metathesis.

POST-CUBIST, DADAIST AND SURREALIST STAGES OF THE *LARGE GLASS*

But there is another extremely important aspect which should not be forgotten when we consider the apparent incongruities of the work. I refer once again to the lengthy period of its conception and execution. It is highly improbable that the general idea of the *Large Glass* did not change between 1912 and 1936. We know that Duchamp's other ideas changed considerably during this period, partly reflecting the state of permanent subversion represented by the principle movements of the

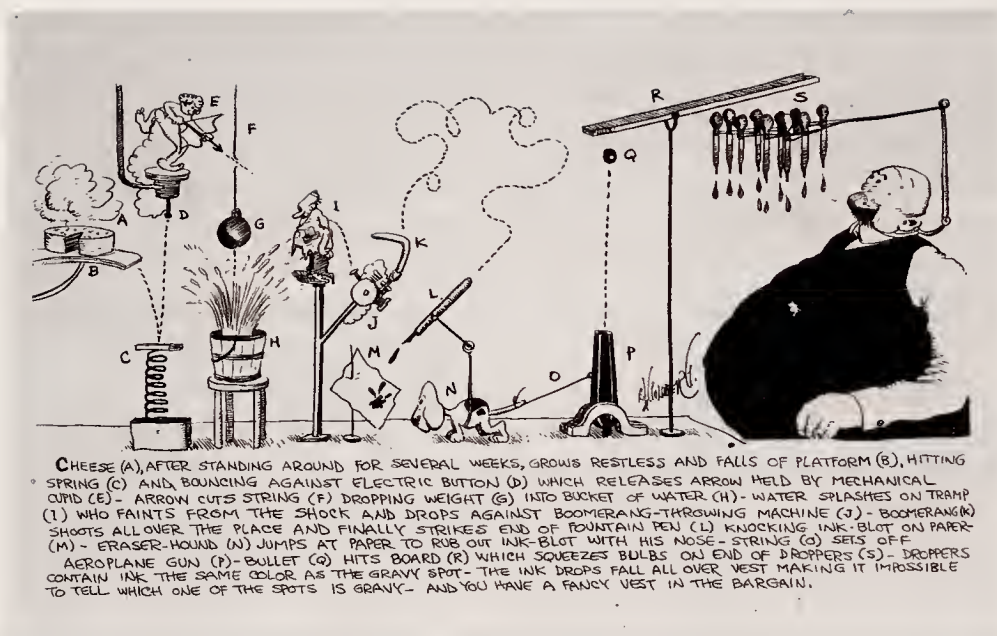
international avant-garde. Towards 1912, Duchamp was a *Cubist* painter whose ideas agreed with those of his friends in the Puteaux circle. His *proto-Dadaist* attitude of three years later was confirmed when Picabia and others brought him news of the revolution in Zurich: *Dada* reached its apogee towards 1917, went into decline after 1920 and then almost vanished completely in 1923. After this, there was a long period of relative silence until, at the beginning of the 1930s, Duchamp re-emerged converted into an prominent fellow-traveller of the Surrealist movement.

I, then, support the theory that there are three distinct global concepts, corresponding to these three phases, of *The Bride Stripped Bare by Her Bachelors, Even*; although the second and third phases assume many of the preceding meanings, the differences between them are very significant.

The first stage (approximately from 1912 to 1916) can be characterized by an attempt to milk *visceral* Cubism¹²⁶ and Futurism for all they were worth. Duchamp was very close to the thinking which Gleizes and Metzinger systematized in their book on Cubism and attempted to apply the problems of the fourth dimension to art. There was something of mystical geometry in this, and perhaps also something of the Symbolists' flirtation with the world of alchemy.¹²⁷ The examples of Alfred Jarry and Raymond Roussel counteracted these tendencies to a certain extent by demonstrating an alternative logic to that of the physicists and mathematicians. It is possible that the idea for the *Large Glass* generated during those years had a lot to do with the *Journey to the Land of the Fourth Dimension* by de Pawlowsky: it would rise from the three-dimensional material world of the bachelors (below) to the 'liberated' universe above ...¹²⁸

When practically the entire upper panel had been painted (towards 1917) and news of the Dadaist revolt reached New York, Duchamp had to emphasize the fantastic machine and erotic joke on the glass. This was the time of greatest activity on the bachelors' machinery. The contradictions and eventual mechanical incongruities fitted in well with the tone of other American and European Dadaist artists of the time. I think that his friends misinterpreted Marcel's initial intention, which was to depict a combination of logical processes in their sexual-mechanical functioning. On seeing nothing more than the glass (they *still* did not have access to the explanatory book), they received the wrong stimulus for making simple jokes about Futurist optimism based on gadgets with impossible functions and inexplicable articulation. I suppose that something in the glass in turn affected Duchamp himself, inclining him towards a more relaxed reinterpretation of his own mechanisms.

From this moment, the idea would have taken shape that the

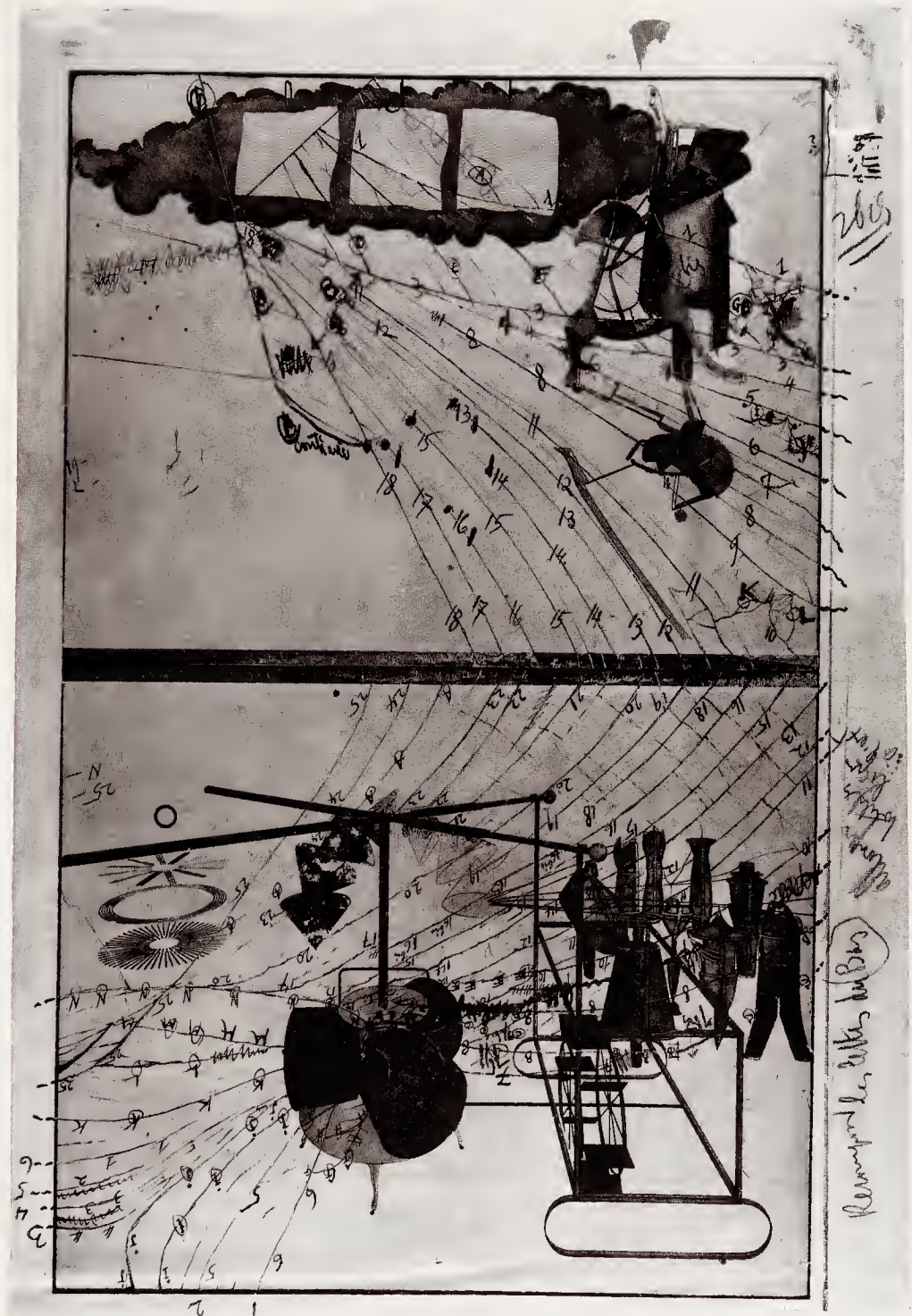


177. The popularity of Rube Goldberg's parody machines (superficially similar to Duchamp's) might have been why he abandoned the *Large Glass* in 1923. We reproduce here the 'Simplified way of disguising a stain from your waistcoat' (1916).

explanatory booklet and what was shown on the glass complemented each other and, moreover, prevented 'each other from assuming an aesthetic-plastic or literary nature'.¹²⁹ Let us say that the Dadaist momentum of the *Large Glass* was based upon the use of pataphysical logic, recognized the ingenuousness of the former, vaguely mathematical concepts and favoured the viewer's participation as the true lever for moving the mechanism and making contact between the bachelors and the bride possible. At this stage, the opticians' charts would have appeared (they do not appear in the overall sketch of 1913), reflecting a growing preoccupation with optics and the 'angle of observation' which was to result, much later, in the contrivance of *Etant donnés*.

By the end of 1922, the heyday of Dadaism was over, and Duchamp had become bored by the slowness and fiddly handicraft which were required to finish his great work on glass.¹³⁰ Moreover, what was the point of continuing with it when the slogan 'return to order' could be heard everywhere? It may also be the case that he was influenced by the growing popularity in the United States of the mechanical parodies drawn by Rube Goldberg, which, on superficial consideration, could be interpreted as being somewhat similar to what had been conceived as part of the *Large Glass* (illus. 177).¹³¹ In January 1923, Duchamp abandoned his New York studio, the following month moving back to Paris, where he was to live until 1926.¹³² Here, there is an important biographical hiatus, recognized

178. Duchamp carefully drew and numbered the cracks in the *Large Glass* on the reverse side of the work in order to prepare the panels for the *Boîte en valise* (1939; Philadelphia Museum of Art).



by Marcel himself, when he wrote in a brief biographical note: '1923, return to Paris. Mary Reynolds, Rue Campagne, Im. Hotel Istria.'¹³³ The first American period was ending, then. And one has the impression that his relationship with Mary Reynolds had something to do with his abandonment of the *Large Glass*, as if the meeting with 'the bride' had already happened, so that there was no need to continue working on that interminable metaphor of sexual longing.

THE BREAKING AND REPAIRING OF THE *LARGE GLASS*

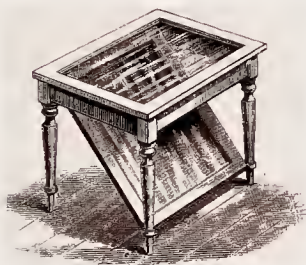
The final full stop? No. There is a third stage to the work, that of the (this time) *definitive* completion, which is marked by the spirit of Surrealism. In order to understand the implications of this final stage, and as a kind of epilogue to our study, we must mention one or two historical references. The *International Exhibition of Modern Art* was held between 19 November 1926 and 9 January 1927 at the Brooklyn Museum; the incomplete version of the *Large Glass*, just as it was when it had been abandoned in 1922, was included. When the exhibition came to an end, some careless employees dismantled the work, placing the two sheets of glass flat, one on top of another, in a box. And that is how the bride and bachelors travelled in a lorry back to Connecticut and the house of the work's then owner, Katherine Dreier.¹³⁴ The condition of the road was very poor, and jolting caused by potholes broke the glass. It appears that the accident was discovered when Dreier was having some work done to her house in 1931,¹³⁵ a significant date which shows the low esteem in which what we now consider a major work of twentieth-century art was then held: the *Large Glass* lay broken for almost five years in a box without anybody even bothering to look at it!

In the summer of 1936, Duchamp, looking for good-quality photographs to include in the *Boîte en valise*, spent some time at the house of Katherine Dreier, who used to collect materials for him. It was then that he re-did *Trois stoppages étalon* (illus. 14) and *Rotative plaque verre* (illus. 187, 188), although he was mainly concerned with carefully re-assembling, with the help of a skilled workman, all of the broken pieces of *The Bride Stripped Bare by Her Bachelors, Even*. This task again put to the test Duchamp's well-known capacity for manual work and his genius for redefining the meaning of his own oeuvre in the context of new circumstances. The broken panes of glass were put back together between two plates of intact glass, and everything was strengthened by means of a strong

179. The two panels of the *Large Glass*, unfinished, superimposed and transparent, in Duchamp's New York studio (photo taken c. 1918 and published by Lebel).



180, 181. Tracing tables for 'precision drawing' taken from the Stanley and Lietz catalogues, respectively.



THE A. LIETZ COMPANY, 1000-1001 MARKET ST. SAN FRANCISCO, U.S.A.
THE "NATOMA" ILLUMINATED TRACING TABLE



No. 3337

This table is 34 inches high, with a 3 inch, cast-iron frame and has a 4 inch, 36 inch square top with glass facing, 36 inch square top, 3 inch thick. Bottom with aluminum feet and illuminated by a special lamp giving a perfect light for tracing the finest lines on crystal copy and eliminating all shadows. 150 drawings and other industrial drawings can be traced without difficulty. (See page 100)

No. 3027. The "NATOMA" Illuminated Tracing Table. (See page 100)

THE "COLOMA" ILLUMINATED TRACING TABLE



No. 3338

The "Coloma" tracing and illuminating table has a top 36 inch square with glass facing in center 36 inch square. The table is adjustable in height from 30 to 40 inches and may be tilted in and out. The aluminum frame is illuminated and lights are permanently attached to the working top and give a perfect reflection of light without shadows. (See page 100)

No. 3028. The "Coloma" Tracing and Illuminating Table. (See page 100)

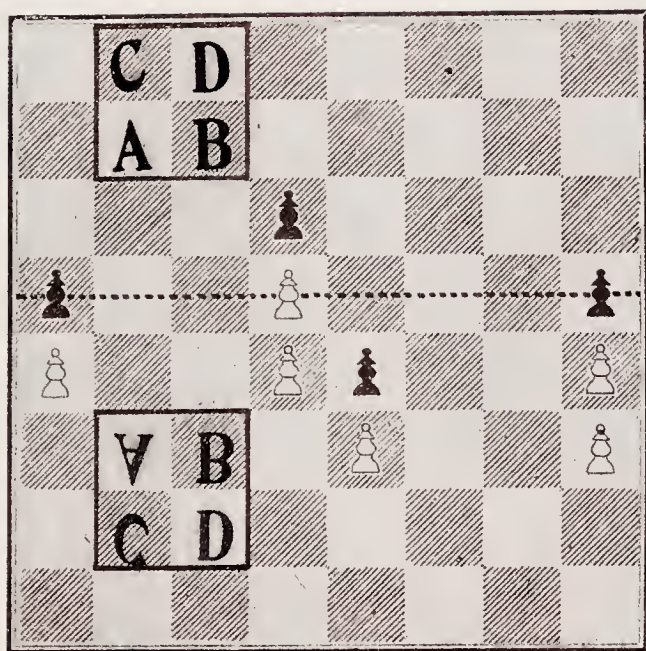
SEE PRICE LIST IN BACK OF CATALOG

metal frame. In this way, a suggestion from one of his presumably much earlier notes was made reality: 'For a hilarious picture . . . Put the whole of the *Bride* in a globe or into a transparent compartment.'¹³⁶ Before this restoration, all of the cracks were drawn and the broken pieces numbered (illus. 178). Obviously, this required a painstaking examination and careful mental reconstruction of the accident which had caused the breakage, just as there must have been a reason why Duchamp was so content with this intervention of pure chance. 'I like these cracks,' he said to Sweeney in 1955,

because they don't look like a broken pane of glass. They have a form, a symmetrical architecture. Also, I see them as a curious intention of something for which I am not responsible, an intention *already carried out* in a certain way, which I respect and like.¹³⁷

A similar statement has puzzled scholars. Adcock, following Lebel, thought that the network of cracks must have amused Duchamp because of its similarity to the 1914 work *Network of Stoppages* (illus. 15). He also interpreted the rotation of the two glass panels, one placed on top of the other, as a chance application of the principles of four-dimensional geometry.¹³⁸ But I think that we should consider this accident against the general thematic background of the whole work, understood as a drama or process working in more than one direction rather than as the frozen representation of an action.¹³⁹

In one way, chance permitted the materialization of an idea found in the *Green Box*: 'Perhaps make a hinged picture.'¹⁴⁰ The workmen turned the upper panel on its base so as to lay it flat on top of the lower panel. This was not the first time that the panels had been placed one on top of the other; in a photograph of Duchamp's studio taken around 1918, we see both of them leaning against the wall, the one on top of the other,



182. One of the plates from the 1932 chess textbook entitled *Opposition et cases conjuguées* . . . The reader has to fold the 'board' along the dotted line so that some of the squares join up when superimposed through the transparency.

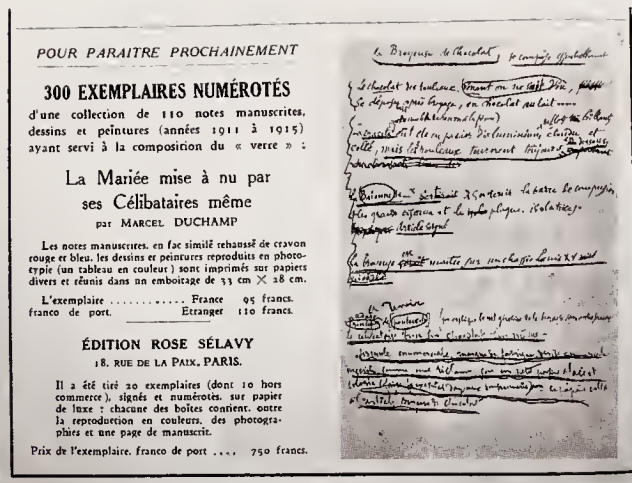
anticipating (without the breakage) the effects of the lorry journey after the Brooklyn exhibition (illus. 179). H.-P. Roché described his friend's painstaking work on the panes of glass, 'placed horizontally as if they were tables',¹⁴¹ an idea, incidentally, which makes us think of how the *Large Glass* might have resembled a table for making tracings, a process in which transparent material is superimposed on images (illus. 180, 181).¹⁴² We must also think of the large number of chess problems which Duchamp and Halberstadt displayed using sheets of film that had to be folded, thus converting the game-board into an imaginary hinged picture similar to the glass panels (illus. 182).¹⁴³

In addition, the idea of 'detachable approximation' was confirmed,¹⁴⁴ since not only were the two rectangles separated from their primitive frame, but the countless pieces of the broken panels were put back together; theoretically, it would not be impossible to dismantle them again (although this would not be advisable for obvious reasons of conservation).

Finally, the superimposition of the panes of glass was completed late, and this gave clear meaning to the subtitle *retard en verre*:¹⁴⁵ the bride came into physical contact with her bachelors during a journey characterized by jolting which caused the symmetrical breaking of both rectangles of glass. The *Large Glass* was finished, then, at the moment when the 1936 restoration established and assumed the secret contact between the panels (which had lasted for nine years). The initial metaphysical fumes and remote coldness became less intense as soon as (as Duchamp himself said

183. The cracks in the *Large Glass* form a beautiful symmetrical pattern between the two panels: thanks to 'objective chance', the sphere of the bride finally communicates with that of the bachelors.





184. An essential episode for the completion in Surrealist code of the *Large Glass* was the publication of the *Green Glass Notes*, the announcement for which appeared in *Minotaure*, no. 5 (1934).

to Steefel) the cracks returned the picture to this world.¹⁴⁶ Observing them closely, we see that they open up into a fan, starting from the top right and progressing down to the bottom left (the bride's panel), and from the bottom right to the top left (bachelors' panel) (illus. 183); through these cracks, in addition to the originally envisaged mechanisms, a permanent communication is established between the sexes. The idea of the *Large Glass* as a '69', to which we have already referred, now begins to seem more credible.

THE SURREALIST MOMENT (OBJECTIVE CHANCE)

I believe, in view of all this, that Duchamp was not charmed by the intervention of the Dadaists' concept of simple chance, the negator of all inexorable logic, but by the objective chance of the Surrealists. This clearly involved a gradual (i.e. objective chance) progressive approach to André Breton and his way of thinking which culminated when the latter published, in 1935, 'Phare de la mariée', the first important text on the *Large Glass* (illus. 147).¹⁴⁷ But the Surrealist writer's interpretation was as distinct from the mechanical and mathematical rigour of the first stage (that of 'visceral' post-Cubism) as it was from the pataphysical logic and systematic metathesis which appeared to justify *The Bride Stripped Bare by Her Bachelors, Even* during the Dada period. Breton spoke about 'a work in which it is impossible not to see at least the trophy of a fabulous hunt through unexplored territory, within the confines of eroticism, philosophical speculation, the competitive spirit, the final discoveries of science, lyricism and humour'.¹⁴⁸ We see that Duchamp's initial work was turned into

poetry, and the hunter after treasures in the virgin territory of the unconscious found there the confirmation of his desires. 'Chance', one reads in one of the seminal works on Surrealism which quotes Breton, 'would be the form of manifestation of exterior necessity that opens the way to the human unconscious.'¹⁴⁹ And what other desire, in the view of the Surrealist world, would be more important than the marvellous and inevitable discovery of love? The same chance which guided the apparent coincidences in *Nadja* would have determined the encounter of the two panels of the glass, drawing the symmetrical layout of the cracks and 'objectively' overcoming the artist's conscious intentions.

The *Large Glass*, then, is the story of a prodigious sexual adventure that we have to read, stretching the representation over time, as if it were a novel. We have already seen that the decoding of the various parts can vary when we place the 'personages' in their proper ideological and ever-changing surroundings. The story which it tells us, as in many cheap romances, has a happy ending. And all this is possible because the initial weird machinery is corrected by a secret logic ('chance') which, in the end, turns our deepest wishes into reality with relative independence from the conscious suggestions of our will.

In the Orbit of *Etant donnés*

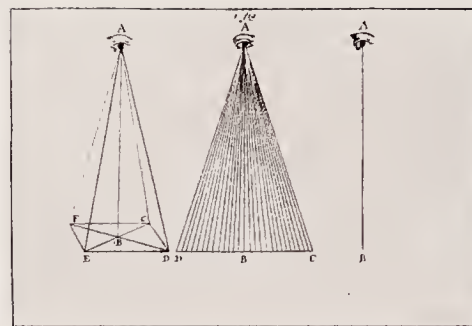
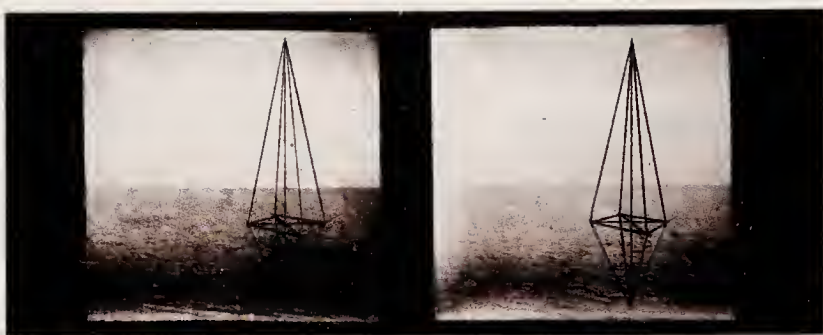


WORKS WITH OPTICAL GADGETS

If Marcel Duchamp had not given us the posthumous surprise of *Étant donnés*, we would have had no choice but to accept what he said about his voluntary silence when he abandoned the ‘unfinished’ *Large Glass* in 1923. It is not that he gave up artistic activity after his return from New York to Paris: on the contrary, a great many of his works, which are of an extremely varied nature, contradict the artist’s stated laziness or phlegm. But I insist that nearly all of the heterogeneous activities of the last four decades of his life would seem relatively incoherent and disjointed were it not for the existence of another great work by Marcel, [a work which complements the *Large Glass* and to which he gave as a title the first lines of the introductory note to the *Green Box: Étant donnés*: 1.° *La chute d’eau*, 2.° *Le gaz d’éclairage* . . . We therefore find ourselves confronted by another interpretative drain, a creation which pulls a multitude of works, all very different from one another and covering a long period of time, towards the centre (we will see what that consists of).] Given that all of these elements acquire meaning in association with *Étant donnés*, we can think in terms of another ‘solar system’, parallel to that constituted by the ready-mades which refer to the *Large Glass*. Or perhaps we should be speaking of a constellation instead?

These works, of course, seem to form perfectly characterized families. [Duchamp, the man who rejected repetition out of hand, displayed a notable fidelity to a reduced number of themes and obsessions, so that every work constitutes a clear affirmation of the characteristics of the group to which it belongs, without failing to affirm its unique individuality.]

Let us begin with the optical gadgets. We have already said that since 1918, Duchamp had accentuated the ‘visual’ dimension of the *Large Glass*,



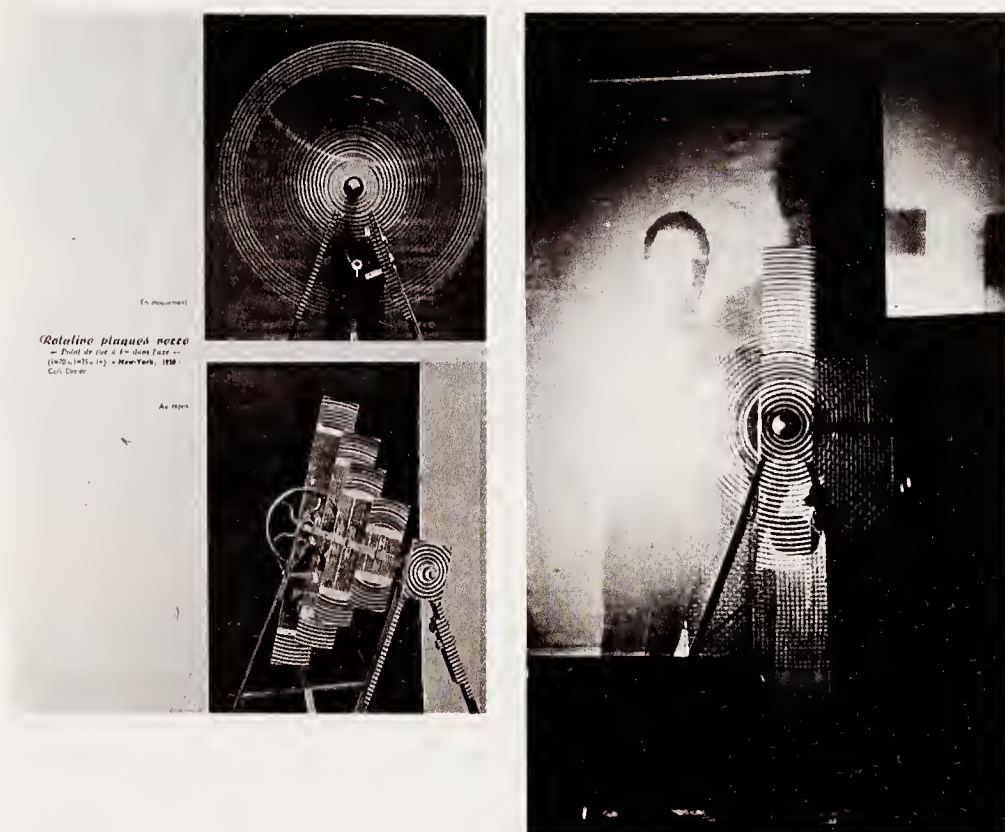
after having painted his little work on glass of 1918, *A regarder (l'autre côté du verre) d'un oeil, de près, pendant presque une heure* in Buenos Aires (illus. 119). In the same city, in 1918–19, he thought up *Stereoscopy by Hand* (illus. 185, 186). In both works, there is a clear preoccupation with the angle of observation; by controlling our position, we bring into view a situation involving both perception and psychology which, given the works' basic elements, is unexpected.

Rotative plaque verre (Optique de précision), created in collaboration with Man Ray (New York, 1920), is a genuine machine which consists of five rectangular glass panels mounted along a metallic axis (illus. 187, 188) and which is capable of revolving at varying speeds, being powered by an electric motor. When the machine is operating, the circular segments painted on the panels appear as complete circles or, rather, as geometrical spirals.¹ It might almost be said that they resemble optical drills which burrow into virtual space. On the basis of this simple effect alone, the *Rotator* would have had an important meaning for Duchamp, since the eye, situated in a specific place, destroys depth, transferring to an imaginary surface (of glass) the discontinued lines situated at different levels in reality. It appears to me that this kind of optical absorption of space, brought about by circular motion, explains quite a few things about the opticians' charts in the *Large Glass*: given their position in perspective, we can imagine the visual projection, upwards, from the area of the splash, with all that it contains. The connection between the *Rotator* and the bachelors' space is strengthened by one or two anecdotes which relate to its chance execution: Man Ray mentioned how the machine exploded during a trial, and the broken panes of glass almost cut the throats of its unsuspecting creators.² Are not the 'malic' figures which produce the gas also decapitated?

The result of all this is that it is interesting, finally, to check how the *Rotative plaque verre*, just like the *Rotative demi-sphère* of 1925 (illus. 189),

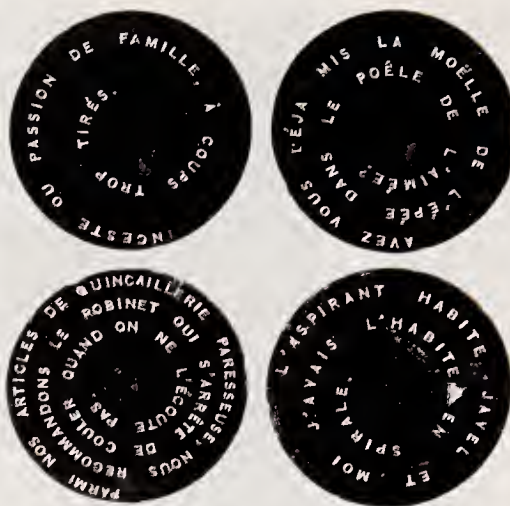
185, 186. Duchamp's interest in images with illusory relief manifested itself in 1918–19 with his ready-made *Stereoscopy by Hand* (Museum of Modern Art, New York). A probable source for this geometric figure might have been *La Perspective pratique . . .* by Du Breuil (1649).

187, 188. The *Rotative plaque verre* (1920), taken from the photographs which Duchamp included in the *Boîte en valise*. Here, unlike when one is dealing with traditional perspective, the illusion is created that real depth has been eliminated. The photograph of the artist taken while the machine was revolving suggests interesting anthropomorphic connotations.



shows the visual resolution of certain problems of n -dimensional geometry. The passage of the plane to the third dimension (or vice versa) is optical in nature, but the eye photographs the mechanisms of thought and desire in the viewer (or 'voyeur', as the author would say later in the instruction manual for assembling the *Etant donnés*). Metaphorically speaking, is this where the fourth dimension lies? In a photograph from 1920, Duchamp stands behind the rotating machine working at full speed (illus. 188); the image chosen for the *Boîte en valise* makes us think, for a moment, that the metal support at the bottom is a vague masculine figure, without a head, whose genital region corresponds to the electric motor moving the entire structure (illus. 187).

I believe that this is intentional: in the 1926 film *Anemic Cinema* (made in collaboration with Man Ray and Marc Allégret), there were some rotating disks with spiral inscriptions, one of which, very significantly, read *L'Aspirant habite Javel et moi j'avais l'habite en spirale*. Another asked: *Avez vous déjà mis la moelle de l'épée dans le poêle de l'aimée?* (illus. 190). I do not think that it is necessary to dwell on the fact that these optical apparatuses continue in the erotic and burlesque vein we have already seen in the ready-mades and *Large Glass*.



189. *Rotative demi-sphère* (1925) is another rotating device, but the disk is in relief.

190. *Discs with Spiral Texts* used in the film *Anemic Cinema* (1926). Almost all of them contain erotic jokes.

It could be that things are less clear with the simple *Optical Discs*, without texts, also used in the 1926 film³ or in the different series of *Rotoreliefs* (illus. 191, 191a) which was published beginning in 1935.⁴ Nevertheless, the first of these, entitled *Corolles*, was used as the cover for the edition of *Minotaure* in which André Breton's article 'Phare de la mariée' appeared (illus. 191a). Given the context, an ingenuous reader might identify this disc with the monstrous eye of the Minotaur, lost or 'disoriented' (like the gas produced by the malic moulds) in the labyrinth of the bachelor machine. Is this not placed on top of the famous dust-covered photograph of the *Large Glass* taken by Man Ray (illus. 105)? It seems obvious that here, Duchamp was continuing to give clues about how to read his main works. At this Surrealist stage, the charts had become the *ophthalmic witnesses*, which is how they appear in the *Boîte en valise*: in the end, all of the optical devices require a visual 'witness' who occupies a definite position. [One might say that all of this was leading to the progressive concretization of the viewer, who became indispensable in *Etant donnés*.]

Another interesting thing in this family of works is that they all deal with real machines constructed *ex profeso* to produce specific effects. These are not an ironic distortion of the original function of one of the ready-mades, nor are we looking at a two-dimensional representation of an imaginary mechanism, as in the *Large Glass*. However, the basic technology of these apparatuses is elemental. Duchamp could have learned in school just how easy it was to construct so-called 'Newton's disks'.⁵ In popular books such as 'Tom Tit' or Bellet, there are also simple rotating mechanisms similar to those in the *Rotative plaque verre*, *Precision Optics*,

191, 191a. *Rotoreliefs* (1935) for placing on a turntable, with an accompanying explanation (the photograph is in the Philadelphia Museum of Art). One of them was used, together with the dust-covered background of the *Large Glass*, on the front cover of the issue of *Minotaure* (1935) in which Breton's essay 'Phare de la mariée' was published.



etc. (illus. 192, 193).⁶ They also appear in technical manuals such as the very influential work by Ogden N. Rood (illus. 193).⁷ Although Duchamp's works were different due to their incorporation of motors, their size and their interesting design innovations, we must not forget that the cardboard disks in which impressions of the *Rotoreliefs* were made had to be viewed gyrating on a support as undeniably domestic as the turntable of a record player (illus. 191).⁸ Literally, visual music or music for the deaf, as Duchamp put it on another occasion. The satire continued, then, on the prodigious powers of science and advanced technology. How can we forget the lengths to which Duchamp would go to parody these 'practical' inventions after he tried to sell these discs at the Lépine Competition in 1935?⁹

192, 193. In physics textbooks, both for lay readers and for specialists, we see countless rotating discs designed to produce a variety of optical effects with basic technology. These illustrations are taken from Beller's *Beauté et forces de la nature* (1914) and Rood's *Modern Chromatics* (1879).

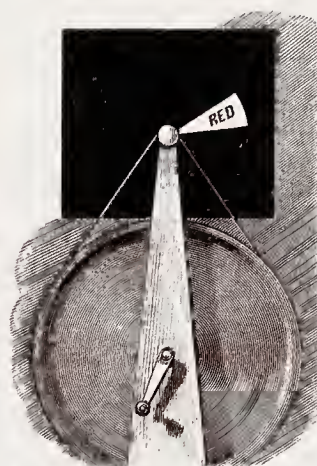


FIG. 92.—Red Sector arranged with Dark Room as a Background.



FIG. 93.—Shows the appearance presented when the sector of Fig. 92 is made to rotate rapidly.



194. The raffle tickets for running *Roulette de Monte Carlo* (Philadelphia Museum of Art), issued by Duchamp in 1924, were something more than an economic adventure: there was another optical machine already made (ready-made) and an allegory about the artist's 'winning' (success) and chance.

It is tempting to make a connection between the rotating machines which we have just mentioned and the 30 raffle tickets which Duchamp issued in 1924 to run *Roulette de Monte Carlo* (illus. 194). The whole scheme was a trick, never fully explained, which would have allowed the shareholders of the company which had to be set up for the purpose to win money 'without fail'. Duchamp claimed to have defeated chance and converted the game of roulette into something resembling chess.¹⁰ The system did not work, of course, but we are left with the evidence of the artist's strange interest in this peculiar gyratory mechanism which could bring fortune or ruin.

It seems that many of Duchamp's preoccupations converged here: he pointed out wittily that the word roulette was like an abbreviation for *ROUe de bicycLETTE* (bicycle wheel).¹¹ If we think about it, both the first ready-made and the Monte Carlo one are moved 'by hand' – that is to say, they are essentially rudimentary mechanisms. Also, in both cases the lines of the spokes (and the numbers) mingle as soon as movement is created; the conical convexity of the two axes approximates these wheels to the optical machines in *Rotative demi-sphère* (illus. 189), which was first mooted in the same year as the raffle tickets. Literary elements confirm this last connection: the play on words 'moustiques domestiques

demistock' was used repeatedly in the Monte Carlo shares fund just as the double signature *M. Duchamp/Rose Sélavy* had its stylistic 'counter-part' in the inscription around the Hemisphere: *RROSE SELAVY ET MOI ESQUIVONS LES ECCHYMOSES DES ESQUIMAUX AUX MOTS EXQUIS.*

The most striking visual element of the raffle tickets printed by Duchamp is his own effigy, resembling a faun (achieved with shaving soap), against the background of the roulette wheel. [This is one way of giving a human story-line to a mechanism, a means of bestowing sexuality on it; here again is the satyr-bachelor trapped in his masturbatory circularity, hoping to acquire the longed-for winnings after each of the croupier's 'manipulations'.¹²] But perhaps there is something more, an allegory of the artist and his chance reward. Duchamp seems to have expressed this thought in a letter to Jean Crotti (17 August 1952):

Artists of all times are like the gamblers of Monte Carlo, and the blind lottery turns some into winners and some into losers. As for me, I can't be bothered with either winners or losers. It's personal good fortune for the winners and tragedy for the losers.¹³

Thus, it is generally the responsibility of posterity, and all art historians know that the game of assessment is constantly being renewed. To win, in love or in art, is a matter of chance. The logical thing to do, as Duchamp did, is try to control it, carefully preparing 'sudden attacks'. What else is signified by his plans to reveal the *Etant donnés* after his death?

WINDOWS AND DOORS

Another group of works, concerned with doors and windows, makes us think of the young Marcel Duchamp, the student of perspective at the Bibliothèque Sainte-Geneviève. There, he must have become very familiar with the metaphor of Renaissance visual representation that considered the picture (the section of the visual pyramid) as an open 'window' into homogeneous space, virtually infinite and regulated by a few precise geometric laws. Much closer were the Cubists' plastic experiments with such works as *Still Life in Front of a Window: Place Ravignan* by Juan Gris, or the numerous windows by Delaunay (after 1912). The latter are very important, because in those semi-abstract canvases vitreous nature is evident on the imaginary plane where representation is constituted.¹⁴

Duchamp's most important window is, of course, the *Large Glass*,

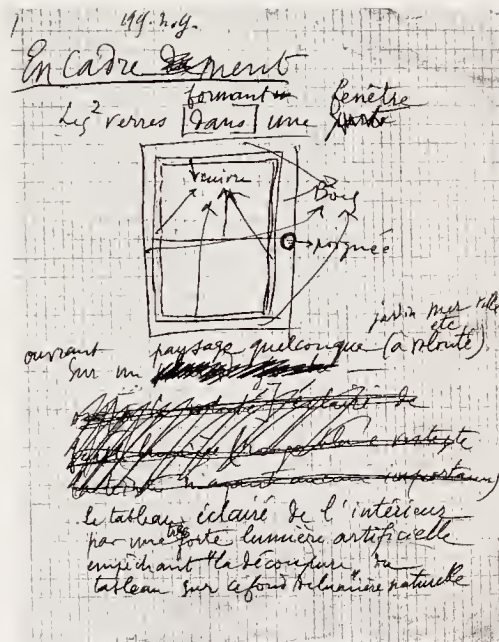
which can be understood as a weird and wonderful shop-window: the note accompanying the *White Box* dated Neuilly, 1913, says: 'No obstinacy, for the absurd, in hiding coitus through a glass with one or several objects on display. The difficulty is to cut the glass and feel remorse when the possession is consummated.'¹⁵ The 'cutting' makes us think of the 'sash windows' which are so common in the United States: the lower rectangle of glass, mounted in its own frame, moves up and down, depending on whether the window is required to be open or closed. If there is something of this about *The Bride Stripped Bare by Her Bachelors, Even*, the upward movement of the bachelors' panel would imply contact by means of visual superimposition with the bride's space. We have already spoken at length of how Duchamp was enchanted with the whole episode of the packaging and symmetrical cracking of the two parts of his creation. I do not wish to make out that this was consciously planned from the start, but it is certain that the artist fantasized about identifying his *Large Glass* with a door/window, as can be deduced from an illustrated note (illus. 195): 'Frame: the two panes of glass form a window . . . opening out on to some landscape.'¹⁶ In this case, and seeing that he drew a spherical knob in the right-hand panel, it seems that the whole work was conceived as being more of an ordinary door or 'French window', which, in America, is the generic term for windows whose panels may be opened by rotating them on lateral hinges.

✓ Duchamp re-created this, literally, with *Fresh Widow* (1920), the miniaturized version of a window of this type, roughly 53 centimetres high and painted green (illus. 196): the glass panes were replaced by eight layers of black leather which had to be polished daily with shoe polish 'like a pair of shoes so that they would shine like real glass', according to the artist's original idea.¹⁷ [This was the first work signed by Rose Sélavy (still without the initial double 'r', which appeared for the first time the following year in *La Bagarre d'Austerlitz*)] In order to interpret it correctly, we must, of course, consider the usual phonetic joke: a fresh, or 'merry', widow is also French, an allusion to the supposed availability (according to the American cliché) of French women, especially the many widows left behind after the First World War.¹⁸ We should also not forget *The Windows*, the poem we have already referred to by Apollinaire, in which, among other things, we read:

Here is a girl among the young girls from Turin
The poor man wipes his snot on his white tie
You will lift the curtain
And now the window opens . . .¹⁹

195. The *Large Glass* as a window (Notes, no. 171).

196. *Fresh Widow* (1920; Museum of Modern Art, New York), the first work signed by Rose Sélavy (without the initial double 'r'), contains a complicated conceptual game and is full of erotic allusions (the merry widow, the Frenchwoman, etc.).



Duchamp must have derived considerable enjoyment from the erotic jokes elicited by his work. He told Arturo Schwarz, for example, that '... instead of considering myself a painter, I should have liked, on that occasion, to be a "window-gazer".'²⁰ I believe that such a term, considering Duchamp's strange English and given the work's consciously erroneous title, might be translated as 'widow-gazer', fan of or expert in widows. [Another interesting thing is that the work had panes of black leather instead of crystal: opacity replaces transparency. Although Duchamp could not have known it in 1920, this work was closer to *Etant donnés* 'in the darkness'²¹ than to the complex illuminated machinery of the *Large Glass*. As for the shine, we must remember that it was to be obtained by 'rubbing' the leather, so that, although by different means, *Fresh Widow* connects with other ready-mades such as *Peine* (illus. 21) or *Apolinère Enameled* (illus. 24). Should we also bring up the business about 'rubbing invisible stains', that behaviour peculiar to bachelors?

The theme of the artificial window reappeared in 1921 with *La Bagarre d'Austerlitz* (illus. 197, 198), another pun on the famous Gare d'Austerlitz in Paris (station, perhaps also with 'baggage'). The front of this work is painted grey, and the lower part appears to be made of wood, which, seen from the other side, seems to have a brick face resembling the exterior of the hypothetical building to which the window belongs. The four transparent panes of glass were given a few dashes of white paint similar to those applied by glaziers on construction sites, and it is

✓ interesting to observe that the two main brush-strokes form large number 8's (the sign of infinity in mathematics, or a Möbius strip). Each face has a distinct signature: *Rose Sélavy* (with two initial 'r's for the first time) and *Marcel Duchamp*. What we are presented with is a *false* 'French window', since what is seen on one side does not correspond with what is seen on the other. Is this another metaphor for uncompromising masculine-feminine duality? Of course, one should not see here any reconciliation between the opposite poles, since the word *bagarre* (rumpus) suggests the same conflict (the battle of the sexes) which seems to form the basis for nearly all of Duchamp's important works.

✓✓ These windows play games with the eyes, which can either see or not see through their flat surfaces. The windows' reduced sizes, elsewhere, make nonsense of the idea of converting them into places of passage. This is why the two doors devised by Duchamp really are memorable, one from *11, rue Larrey* (1927) and the other from *Gradyva Gallery* (1937). He made the first one for his apartment in Paris, and it served simultaneously for his bathroom and studio, so that one remained open while the other was closed, and vice versa (illus. 199). This seems to be a clear illustration of the 'freedom of indifference' and a practical demonstration of Duchamp's famous proposition that '... there is no solution because there is no problem.'²² We know that the artist wanted to test the inexactitude of categorical assertions of the type 'A door must be either fully open or closed.'²³ But we must be cautious before we attribute any amorous meaning to this installation, since it could serve just as well to support the thesis of a hypothetical androgyne quality and to justify the irreconcilable duality between the sexes to which we have already referred.

In a fit of Surrealist enthusiasm, Duchamp made the door for André Breton's gallery, called 'Gradyva' in honour of the character in the novel by W. Jensen. We know that the psychoanalytical interpretation of this text by Sigmund Freud provoked a flood of admiration from the Surrealist artists, especially after 1931, when the first complete French translation of both works appeared in a single volume.²⁴ Duchamp had the silhouette of an embracing couple cut out of a thick sheet of glass so that the hole became the entrance into the art gallery (illus. 200). We should remember that he had just restored the *Large Glass*. Was he not then presenting us with another version of the meeting of the sexes? If we attribute a rigorous anthropomorphic correspondence to such a silhouette, we will conclude that only the embracing lovers can enter the magic space which will be revealed in the Gradyva Gallery. They



✓ 197, 198. Obverse and reverse of another window: *La Bagarre d'Austerlitz* (1921; W. N. Copley Collection, New York) bears the double signature of Marcel Duchamp and Rose Sélavy.

have left the glass plane and are literally passing through it; it is not necessary to say that their amorous movements will overcome mathematicians' capacity to imagine rotations and projections generating multi-dimensional space.

Before moving on to a new theme, we must mention that, a decade later (about 1946), Duchamp thought of a strange way in which the functions of these works could interact. In fact, it is impossible to walk through the door of *Etant donnés*, yet we are obliged to look through it as if, somehow, it were standing in for a window. Is it another *Fresh Widow*, another *Bagarre d'Austerlitz*, another *Gradiva*, or is it a hybrid which assumes the qualities of all of these simultaneously?

THE BOXES

There is also a relationship between the doors and another collection of works that originated when Duchamp 'published' three copies of the ✓ so-called *Box of 1914*. On this occasion, he made use of several boxes of Kodak plates ('ready-mades'), including in each one a photographic



reproduction of 16 notes and manuscripts and the sketch *Avoir l'apprenti dans le soleil* (illus. 13). This is obviously a sophisticated and random alternative to a bound book which has to be read in a predetermined order.

It is not surprising that this form was chosen for the facsimile publication, in 1934, of the 93 documents which constitute the contents of the *Green Box*. We already know that this work was intended as an aid in the interpretation of the *Large Glass*; hence the title printed in capital letters and made up of perforations on the lid: *LA MARIEE MISE A NU PAR SES CELIBATAIRES, MEME*. I believe that, although the notes date from a much earlier period, their selection and the decision to publish them in this manner coincided with Duchamp's Surrealist period; we have already pointed out how this affected the final result, after its repair, of the great work on (and with) glass.

The *Green Box* is a kind of warehouse of ideas and suggestions, apparently incomplete and/or contradictory, but it bestows (in clear agreement with the universe of André Breton and his friends) a few unequivocal meanings on the *Large Glass*. It has been pointed out, in this respect, that the French words *verte* (green) and *verre* (glass) are very similar, although perhaps not all the implications of this similarity have been explored. The

199. One of the doors inside Duchamp's apartment in Paris (11, rue Larrey) conceived so that when the door to the bathroom opened, that to the studio closed and vice-versa (1927).

200. The door to André Breton's Gradyva Gallery (1937) showed the cut-out silhouette of the embracing lovers on the glass.

substitution of transparency by the predominant colour of the French countryside points to a more naturalistic interpretation of what is depicted and may be connected with the French (and Spanish) vulgar use of the word (*vert/verde*), which equates to the English 'blue'. It is also one step closer to *Cols alités* (illus. 168), destined to end up as *Etant donnés*. But there is more. The box, as a material object, keeps the 'bride' locked up. That is to say, it is a receptacle, as is the painting of the *Large Glass*, compressed between the two sheets of glass and the frame, after the repairs of 1936. The work's transparency sends us back to the texts which the box keeps locked away in its opaque darkness.

Much more complex and ambitious was the so-called *Boîte en valise*.[✓] Between 1935 and 1940, Duchamp worked with painstaking patience over the design of a kind of catalogue for his work. As he said to Sweeney:

Instead of painting something new, I wanted to reproduce those pictures of which I was so fond, in miniature and contained in a much reduced space. I did not know how to do it. First of all, I thought of a book but did not like the idea. Then, I thought of having a box in which all of my works could be collected and mounted as if in a small museum, a portable museum, and that was the reason why I installed it in a suitcase [illus. 201, 202].²⁵

Although on the subscription form for the *Boîte* the publication date is given as 1 January 1941, we know that Duchamp had been preparing the materials for some time and that nearly all the exhibits were mounted later on and over a considerable period of time.²⁶

There are many things to interest us in this work. Unlike the boxes containing notes (including *A l'infinif*, also known as the *White Box*), the *Boîte en valise* stipulates a set order in which it must be 'unfolded'; all of the objects and paintings contained in it are revealed to the observer in a predetermined sequence. The photograph which *Time* magazine published in 1942 shows Duchamp manipulating one of the boxes (illus. 202) and demonstrating the ideal way to proceed, as if it were a machine or domestic appliance.²⁷ We noted about the ready-mades that the lay-out[✓] of the exhibits inside the *Boîte* had been thought out in order to direct the interpretation of some of the originals. I believe that all of this was an advance announcement of the 'order of the 15 steps for general assembly' foreseen by Duchamp for the transfer and re-assembly of *Etant donnés*.²⁸ Also, the latter is like a 'transportable' box, and there is no doubt (its consciously posthumous character accentuates this) that, like the *Boîte en valise*, it was conceived as a 'summing up' of Duchamp's previous work.



201. The *Boîte en valise* partially unfolded (1942?). Here, Duchamp thought up his own private alternative to the book/catalogue of an artist's 'complete works'.

Such a connection is even more obvious if we consider the device conceived in 1942 so that some of the works contained in the *Boîte* might be seen by spectators one at a time, looking through peep-holes. This was 'an automatic way of showing paintings', as its supposed inventor, Frederick Kiesler, described it: 14 of the exhibits in the *Boîte* were connected to a spiral wheel, and the viewer had to turn the mechanism by hand. This contraption was placed in Peggy Guggenheim's 'Art of this Century' Gallery (from where the suitcases were distributed) with the stated aim of 'adding more possibilities for exhibiting in a reduced space' (illus. 203, 204).²⁹ We need to be clear about a couple of things here. At this time, Duchamp was living at Kiesler's house, and it is reasonable to suppose that he had something to do with Kiesler's invention. I think that what we have here is a another variant of his optical devices, full of gyratory spirals; it is not difficult to find the inspiration for them in pre-cinematographic inventions (illus. ✓ 204). Control of the angle of observation had begun to be an obsession, as we have seen, by the later stages of *Large Glass*, and it is very significant that this concern should show itself in such an unexpected manner (and one which is so similar to *Etant donnés*) with regard to *Boîte en valise*.

But in addition to containing reproductions of other works by Duchamp, this box is a work of art in its own right, with its own significance. ✓ *Du ou par Marcel Duchamp ou Rose Sélavy* is the signature/title which the eventual operator finds as soon as s/he opens the case, in the central triangle of a large wooden letter 'M' (the first letter of 'Marcel' but also of 'Married') which occupies the entire quadrangle. This really

202. Duchamp arranging the *Boîte en valise*, from a 1942 photograph.



resembles the front page of a magazine. The double signature separated by ✓ the conjunction 'or' is another way of playing with the 'freedom of indifference', as with the door at 11, rue Larrey: the author/ess is one or the other – that is to say, both. The explicit presence here of both names seems to oblige us to place them on *Etant donnés* as well (we shall see how this affects the interpretation of that work).

Duchamp was concerned that the works included in *Boîte en valise* should be carefully labelled and told us exactly how many there were of



203, 204. Frederick Kiesler (almost certainly with the collaboration of Duchamp) dreamed up a contraption for viewing, through a peep-hole, some of the exhibits from the *Boîte en valise*. Here, we see Peggy Guggenheim working the apparatus installed in her gallery (1942). Something similar can be seen in such pre-cinematograph devices as the 'Kinora', which was on view at the 1900 Exposition Universelle in Paris.

each: 'This box should contain 69 items.'³⁰ Why this number and not some other? For an artist such as he, it was relatively easy to increase or decrease the calculation of his significant works. A test: André Breton, in 1934, stated clearly that 'Marcel Duchamp fixes at thirty-five the number of his incursions into the world of plastic.'³¹ We may suppose, nevertheless, that there was some reason why, a few years later, this calculation had risen to the exact number seen on the first version of the *Boîte*. It may be that the explanation comes from the universe of the avant-garde: in the 'Recherches sur la sexualité' undertaken by *La Révolution surréaliste*, there are such questions as: 'What are your favourite sexual positions?' The replies in favour of '69' formed a considerable majority.³² It seems to me that what we have here is another erotic joke which adds plausibility to the idea, already mentioned, of the *Large Glass* as a '69', and this would have been emphasized after its restoration. When all is said and done, Duchamp undertook this work in 1936 when he went to Katherine Dreier's place in Connecticut, as we have seen, with the express intention of obtaining photographs of his own works to be included in the *Boîte en valise*. In any case, the idea of amorous contact between the two sexes makes it possible to consider this 'complete work' as a clear link in the union between the great work on glass and *Etant donnés*.³³

What we have just said is, perhaps, a good lead-in to Rrose Sélavy, an 'alter ego' which Duchamp began to use in 1920. According to his own statements, what he really wanted was to change his identity; having thought of adopting a Jewish name, he decided on a change of sex instead.³⁴ What we have, certainly, is a joke, but, like nearly everything Duchamp did, the word-play is not neutral and is based on logic: the double 'r' means that in French the name 'Rose' will sound like *eros* or *arrose*. In any case, the sexual implications are evident. Next to the surname (Sélavy = c'est la vie = that's life), a phrase is formed complete with meaning, as if it were a solemn declaration of Duchamp's principles: *love* (sprinkling, moistening) *is life*.³⁵

This personage had his own portrait, as we have seen with the ready-made *Belle Haleine* (illus. 37). He appears with great clarity in a 1921 photograph, also taken by Man Ray, in a fur coat and a vaguely Neo-Plastic hat (illus. 205, 206). It has been pointed out that a possible iconographic source is a female part played by Charlie Chaplin in the 1915 film *A Woman* (illus. 206),³⁶ although it may be unnecessary to be so precise about the specific origin, since transvestism is a comic technique as old as the history of the theatre. Another recent observation is very interesting. Dennis Young has recognized in the geometric figures on Rrose Sélavy's hat a stylized portrayal 'of a male and female in the act'.³⁷ The fact that the garment belonged to Picabia's fiancée, Germaine Everling, seems to support rather than contradict this interpretation. We know that sexual imagery was an obsession with all of the Dadaists, and the close connections between some of them and the poetics of Neo-Plasticism are also plain to see. Rrose's expression, as well as her hands (touched up so as to accentuate the desired effect), seem to involve the observer sexually and support Young's observation concerning the pictures on the hat.

Pink is the colour of sentimental literature (supposedly feminine), but it is also the term used in Latin countries to classify pornographic material in which women appear with their legs open. It is from here that one can approach the character in *Etant donnés*.³⁸ The erotic association between Rrose and the colour of the *Green Box* seems to have been clear to Duchamp, as can be deduced from a letter sent to Yvonne Crotti in 1951: 'I have had to spend ten days in Syracuse (N.Y.) for a chess competition, and I have come to understand how good green is for *Roses*.'³⁹ Does this not seem to allude implicitly to the nude (pink) in a landscape?



205, 206. A photograph by Man Ray of Duchamp dressed as Rose Séavy (1920–21; Philadelphia Museum of Art). It has recently been noted that the abstract design on the hat represents a couple making love. A comic precedent may have been the Chaplin film *A Woman* (1915).

It has been said that Rose Séavy tended to sign works which were less geometrical and precise than those signed by Marcel Duchamp. This has been compared to the differences in the artistic education of boys and girls in French schools during the Third Republic; boys were trained in geometric precision drawing, whereas girls were directed towards less exact forms of expression.⁴⁰ But although it is very stimulating to attempt to find a distinct artistic personality for Rose, the arguments which have been put forward thus far are not particularly convincing. We have already seen in the *Boîte en valise* that the two names are alternatives and interchangeable. The most 'retinal' and least geometric work of all, *Etant donnés*, is signed (in an instruction manual and in a zone invisible to the feminine model) only by Marcel Duchamp. Many other important works bear both names. It seems to me that there is no doubt that the artist's point of view is fundamentally *malic*, masculine, and this is perhaps what adds spice and humour to his invention of a fictitious, feminine 'alter ego'.

THE INFRAFINE AND VIRTUALITY

Before we come to a close examination of *Etant donnés*, we must say a few words about the extremely complicated Duchamp category termed *inframince* in French. Some people have translated this as 'infra-delicate', which to me seems to refer more to lightness or absence of weight than

to other aspects involved in the original term. I shall use the term 'infrafine', which is closer literally to the original. Duchamp, speaking to Denis de Rougement, said that the infrafine is something

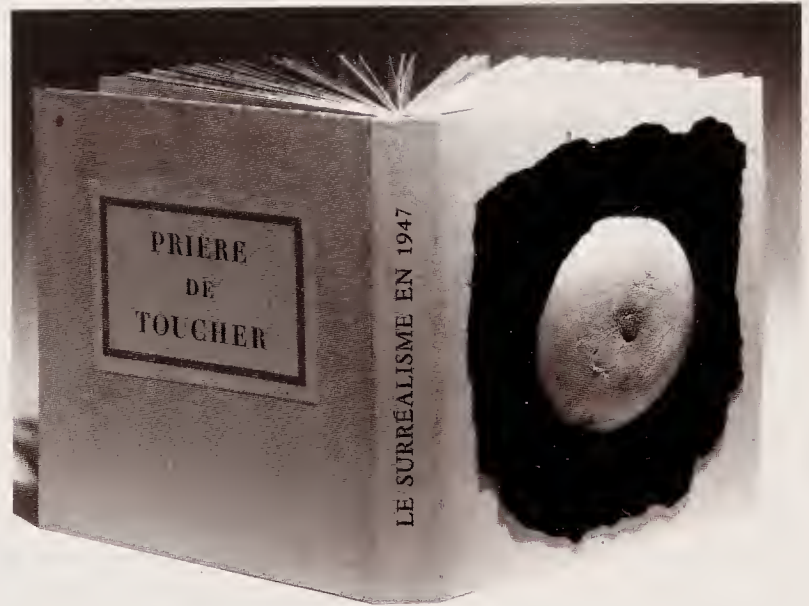
which escapes our scientific definitions. I have chosen the word *fine* deliberately because it is a human, emotional word and not a precise laboratory measurement . . . It is a category with which I have been concerned for ten years now. I believe that we can pass from the second and third dimension through the infrafine.⁴¹ ✓✓

This statement dates from 1945, although some notes show that the idea had been developed many years before, while he was working on *The Bride Stripped Bare by Her Bachelors, Even*.⁴² The term must have originated as an inspiration from mathematics; we have already seen how the theoreticians of n-dimensional geometry asserted that every space has an infinitesimal extension into the next and higher dimension.⁴³

An archetypal case of Duchamp's 'infrafine' is the famous cover of the magazine *View* (1945) in which we see a little cloud of smoke coming out of a sealed bottle of wine and disappearing into thin air; this image is accompanied on the back cover by the beautifully poetic phrase: 'When tobacco smoke smells also of the mouth that exhales it, the two smells are married by the infrafine' (illus. 207). ✓✓

But there are many other examples, very different from this one. [The fact that the infrafine is sometimes a visual category and sometimes olfactory means that we can also imagine its extension to the other faculties.] A systematic reorganization, seen from this perspective, of all of Marcel Duchamp's texts and works of art would doubtless provide some very interesting results. Infrafine would be 'music for the deaf', and this concept would also include all of Duchamp's jokes about tactility, from *Des bas en soie . . . la chose aussi*⁴⁴ to *Prière de toucher* (1947). ✓

The latter work was the front cover for the catalogue of *Le Surréalisme en 1947*; it consisted of a female breast in three-dimensional foam rubber, of a natural size, conveniently coloured, on a background of black velvet (illus. 208).⁴⁵ 999 numbered copies of the book were printed, such an extravagant amount that we are forced to think of the existence of a reasoned argument: if the *Boîte en valise* held '69 items', this catalogue seems to require the absent number, as if 'the one who touches' (three times?) had to complete the mythical, erotic number for the Surrealists with his infrafine tactility. Duchamp had begun to work on *Etant donnés* the previous year, and it is obvious that *Prière de toucher* forms part of the same hyper-naturalistic sexual poetic. The observer's touch and sight



✓ intrude in both instances, especially if we bear in mind that, as we shall see, Duchamp's last great work shows a state of 'instantaneous repose' – that is to say, the glance which precedes action.⁴⁶

The infrafine allows us once again to consider a virtual physical potential, as in the note from the *Green Box*: 'the pen-knife blades which cut well and the pen-knife blades which do not yet cut. The first have "cutting" in reserve. Use this "cut" or "cutting".'⁴⁷ As 'infrafine', according to Duchamp, is an 'emotional' term, it appears to be a utopian-burlesque alternative to physico-chemical sciences and the productive manipulation of the latter following the Industrial Revolution. This interpretation allows us to place the term at the very heart of Duchamp's work. Let us remember the *Transformer* note again: 'The use [of an] apparatus,' he wrote,

to collect [register] and transform all of the small, external manifestations of man's energy (in excess or wasted), as for example: the excess of pressure on a light switch, the exhalation of tobacco smoke, the growth of hair and nails, the fall of urine and shit, the convulsive movements of fear, fright, laughter, the fall of tears, demonstrative gestures of the hands, cold looks, arms which hang down along the body, stretching, expectoration of mucous or blood, vomiting, ejaculation, sneezing, the cow-lick or rebel hair, the noise from blowing one's nose, snoring, tics, fainting, whistling, yawning.⁴⁸

Another example of this impossible and paradoxical economy would be the tap which stops dripping when it cannot be heard, one of the *Written rotten/Morceaux moisis* included in the *Boîte en valise*.⁴⁹

207. The cover of *l'Œuv* (March 1945) with the inscription which accompanied it, an archetypal example of the infrafine.

208. With the 999 examples of *Prière de toucher* (1947), Duchamp conceived a metaphor for the elevation of the observer (the one who touches) to a 'superior' sphere.

EXISTENTIAL MINIMALISM (LIVING ON CREDIT)

The hypothetical possibility of taking advantage of the immense quantity of lost energy leads us immediately to Duchamp's attitude to life and his lack of interest in money and social position, together with the resulting aspiration to consume (or spend) as little as possible. The ideal of 'living on credit' is also not to produce, to travel through the infrafine. The only work would be to breathe, as Duchamp himself acknowledged in 1966: [Well, if you like, my art would be that of living; every second, every ✓ breath is a work of art that cannot be ascribed to any category as it is neither visual nor cerebral. It is a kind of constant euphoria.⁵⁰] All his life, Duchamp was a 'bachelor' in the social sense of the word, since he never wanted to accept the heavy material and financial responsibilities which marriage and parenthood bring: 'It's a matter, above all,' he said, 'of the negation of the woman in the social sense of the word – that is to say, the woman as the wife, the mother, children . . . I myself did not wish to have them, simply so that I could cut down on expenses.'⁵¹ Only in 1954, when he was 67 years old, did he marry Alexina (Teeny) Sattler, the former wife of Pierre Matisse and mother of three grown children.⁵² I suppose that the acquisition of a 'ready-made family' could be considered as a kind of artistic work, in keeping with the existential minimalism which was so characteristic of him: 'Nobody knows what I lived on,' said Duchamp. 'This question, truly, does not have an exact answer . . . Life is more a question of expenses than of profits. It's a question of knowing what one wants to live with.'⁵³ In his case, the answer appears to have been: *with nothing*. The air (all in the infrafine), like love, is something bestowed. It seems to me to be very much to Duchamp's credit that from all these things he constructed the basic argument for his artistic activity.

‘Given, in the Darkness . . .’
(Love and Death)



THE THREE SPHERES OF *ETANT DONNÉS*

In 1966, Pierre Cabanne talked to Marcel Duchamp about his boxes from the 1930s. When Duchamp said that, at that time, he had not been 'doing anything', Cabanne asked if 'he had stopped for good'. The answer was: 'Yes, but not absolutely definitely. I had stopped in fact, simply. That's all.'¹

This was not the truth, since in that very year he was finishing a very ambitious project which he had been working on in secret since 1946 ✓ and which was to have as its title the first three words from a note accompanying the *Green Box: Etant donnés: 1.° La chute d'eau 2.° Le gaz d'éclairage*. This was not a conventional painting or sculpture, nor was it a ready-made; it was a complex three-dimensional ensemble. [There are no notes to go with it which might help us to decipher the imagery, although Duchamp did put together a curious 'instruction manual', consisting of a manuscript and abundant photographs, with a view to keeping absolute control of the work's dismantling and final re-installation.] On a horizontal slip of paper, next to the title, he wrote: 'Detachable approximation, carried out between 1946 and 1966 in N[ew] Y[ork] (by approximation I mean a margin of freedom in the dismantling and reinstallation)'. He went on to enumerate curtly, without any kind of preface or preparatory explanation, the 'Order of the 15 steps ✓ of general assembly'.²

Etant donnés was conceived and executed in Duchamp's New York studio at 210 West 14th Street: only a few of the artist's closest associates (including his wife, Alexina, and her son, Paul Matisse) knew of the work before its existence was revealed after Duchamp's death. Its definitive installation at the Philadelphia Museum of Art gives an idea of the

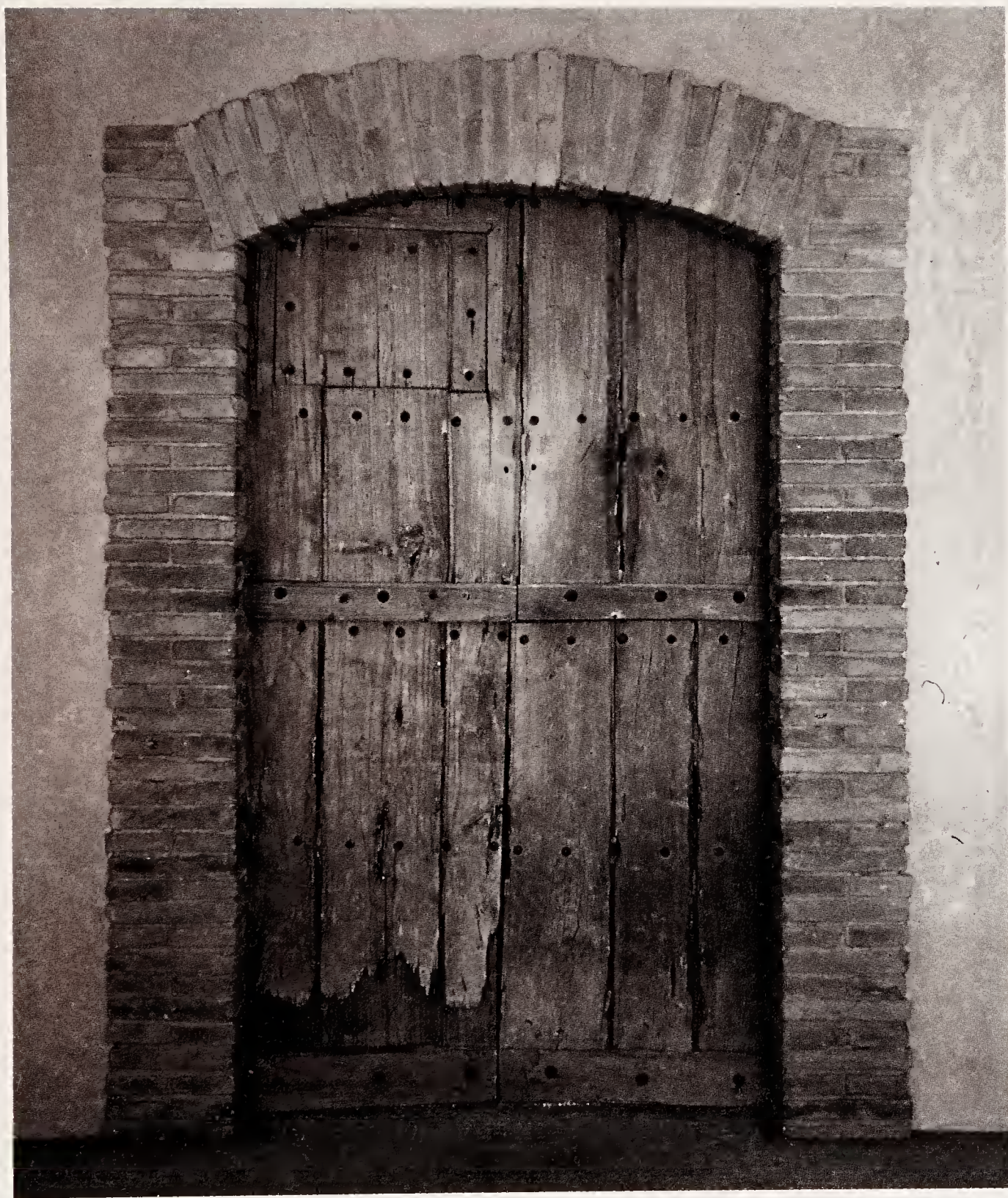
desired effect: after contemplating Arensbergs' excellent collection of Duchamp works plus the *Large Glass* bequeathed by Katherine Dreier, the viewer enters a poorly lit, empty room.³ At the far end, surrounded by a heavy brick frame, is a large door made of wood, eaten away by time, and crude, hand-crafted nails (illus. 20, 210). The tiny holes in the centre, at eye-level, are noticeable only when we move in closer to examine the door's physical characteristics carefully. And if we look through them?

This spectacle, then, is as unexpected in a museum as it would be expected in some deep root of the collective unconscious (illus. 210). On the first level is a brick wall with an irregular opening which looks as if it had been produced by a violent explosion or battering ram. Through it one can see almost the entire naked body of a woman, legs spread wide apart and pointing towards the viewer in an ostentatious display of genitals and shaved pubic hair; her left hand (the only visible one) holds a lamp which gives off a greenish light. The whitish body lies on an autumnal bed of dry branches.⁴ In the background, against a brilliant country landscape, we see a waterfall whose imaginary waters fall with genuine perpetual motion.

Duchamp, who spent almost his entire life reviling 'retinal' painting, here exceeded all extremes of visual illusion. The door is authentic (it was transported to New York from Cadaqués), and anyone who leans against it to look through the peep-holes has the sensation of contemplating a temporarily frozen fragment of reality. This radical inversion of the aesthetic premises which governed the evolution of the *Large Glass* is nevertheless supported by an invisible but complex architectonic and technical structure. Additionally, what we see in this last work is only the hood or illusory curtain behind which *the truth* about the stage machinery and the motor, which does exist here (as we shall see), is hidden.

Etant donnés consists of three spatial areas ideally connected up longitudinally by the glance of the 'voyeur' (this is how the viewer is described in the *Instruction Manual*) (illus. 211): the room outside the door, where museum visitors stand, does not appear to have been defined by Duchamp, and we may suppose that its physical characteristics were set by those responsible for the posthumous re-installation in Philadelphia. We shall call this area the *voyeur's room*. Between the 'Spanish' door and the wall with a hole in it is a rectangular room with a linoleum floor measuring 1 metre in depth and 83 centimetres in width; the lateral 'walls' are made of black velvet; the back of the door is

209, 210. *Etant donnés*: 1st. La chute d'eau 2nd. Le gaz d'éclairage (1946-66; Philadelphia Museum of Art): an old wooden door in a brick frame, and what the 'viewer' sees if he looks through the holes found at eye-level.

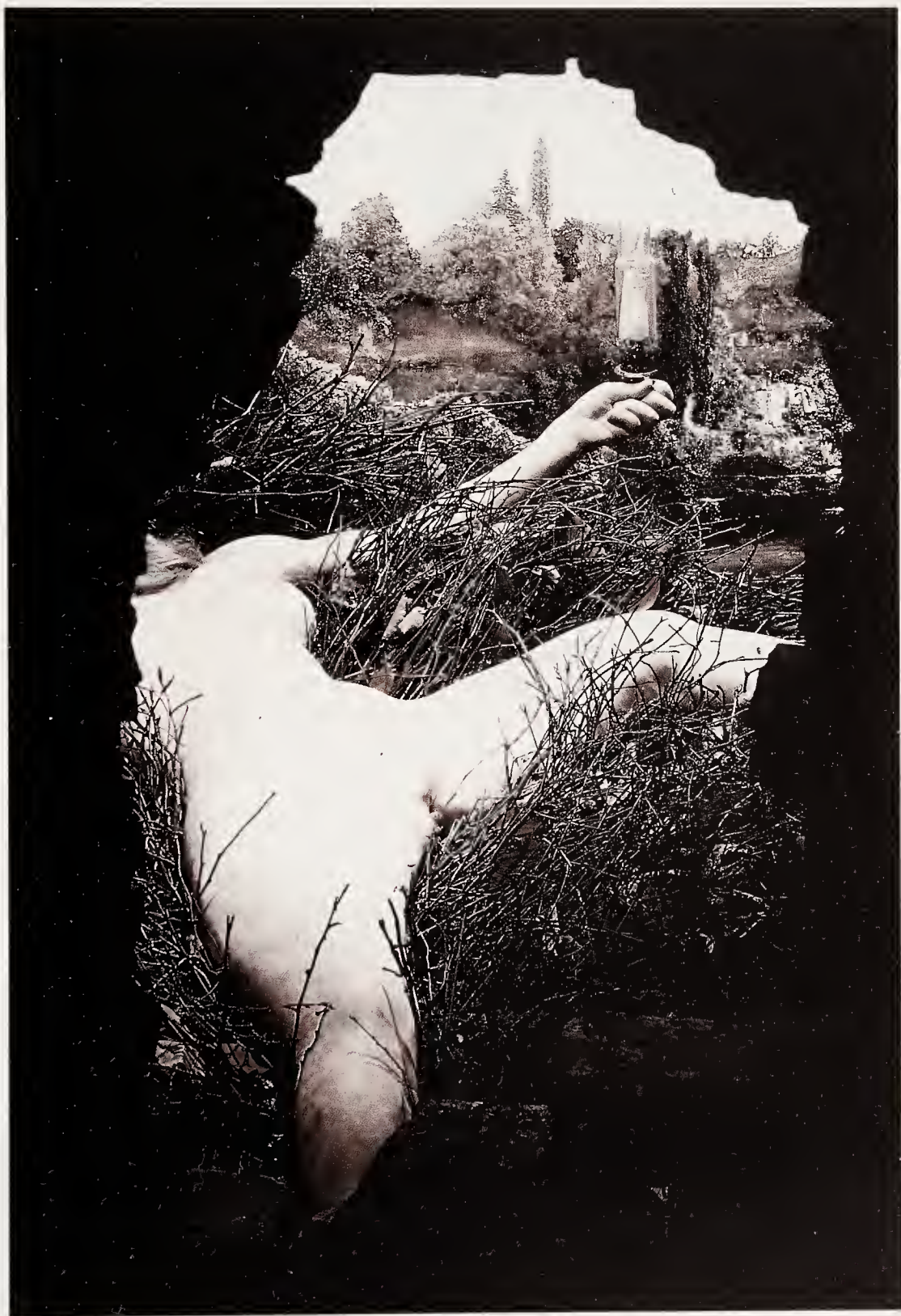


also covered with this material, as is the sloping roof which connects the top of the door to the top of the peep-hole in the brick wall.⁵ According to Duchamp, it was a question of 'constructing a kind of room which appears totally black when seen through the voyeur's peep-holes'.⁶ We shall call this *the room of bricks*. Behind the wall is another floor of checked linoleum, shaped like an irregular pentagon and no more than 185 centimetres in length. The sides of this area are open in the photographs in the *Instruction Manual*, but there is an inclined back-drop which supports the illusory landscape and the waterfall mechanism; almost perpendicular to this is the rectangular table on which the female dummy lies. It has to be said that while the whole device's physical and technical characteristics are invisible to the viewer who looks through the peep-holes, they are obvious to the reader of the *Instruction Manual*. We shall refer to this last area as *the nude's room*.

The manuscript with photographs and diagrammatic drawings produced by Duchamp shows the other aspect of visual reality and must be considered as the equivalent in *Etant donnés* to what was to be included in the catalogue or libretto intended for the *Large Glass*. The *Manual* is, then, a parallel work whose objective importance is equivalent to that of the *Green Box*. Let us examine more closely, using it as a guide, the principal material elements of the Philadelphia exhibit.

THE DOOR AND THE BRICK WALL

In his New York studio, the door which Duchamp had transported from Cadaqués was framed by three vinyl panels simulating exposed-brick door jambs and lintels.⁷ It was an 'illusionistic' element, along the lines of theatre and cinema scenery, of a type which played such an important role in American popular culture.⁸ The contrast between this frame and the door's material nature would have been considerable. A photograph of the door itself (with Alexina to one side), taken in situ, before it was acquired and transferred to the United States (illus. 212), makes it possible to prove that Duchamp made considerable changes to the original. The upper part and both sides were cut down; each of the doors was sawn across the middle, so that the installation of *Etant donnés* consists of four panels connected at the rear by strips of wood; the vertical joins are disguised on the exterior by two horizontal boards,





211. A schematic drawing for setting up *Etant donnés*, based on the photographs from the *Manual* for assembling the work designed by Duchamp himself. In the background is the 'vinyl' frame for the Spanish door (later replaced by bricks for the work in the Philadelphia Museum); thick

black velvet curtains cover the room in between, with the peep-hole allowing us to see part of the 'nude's room'; in the foreground, seen from behind, are the panel, the box containing the landscape, and the motor for the waterfall.

presumably obtained (just like the nails) from the cut-off fragments of the original door. It might be said that the latter, taken as a whole, was reduced, restored and consolidated without any of its weathered texture being lost.

Duchamp arranged it so that the two upper panels could be moved to one side by hanging them on hooks over a metal rod (illus. 213, 214). The stated aim of this was to make it possible to open this part of the door to permit the scene 'behind' it to be photographed. In shape and number (two on each panel), the hooks are similar to those which support the 'Milky Way' and 'female pendant' in the *Large Glass* (illus. 55, 141). The lower panels are fixed and form 'a light concave angle seen from the front part of the door' (illus. 214).⁹ One could say that they form a sort of ergonomic bed, adapted to the lower part of the body (implicitly masculine) stuck to the centre for viewing purposes; while the suspended 'eye-zone' can be opened, and it is clearly unfeasible to do this with the genital zone. Is the whole door, considered on its own, a more or less perfect replica of *The Bride Stripped Bare by Her Bachelors, Even*?

The principal details of the *holed wall* are presented in the third stage. In sixteen horizontal lines, there are a total of sixty-nine bricks, all carefully numbered (illus. 215). This cannot have been a randomly chosen quantity, since the bricks in the third row, over the hole, bear the letters of the alphabet from 'A' to 'F', although it is not clear why.¹⁰ It is clear that Duchamp consciously selected a number which was important to

212. Alexina Duchamp in front of the door used for *Etant donnés*. The photograph must have been taken near Cadaqués at the end of the 1950s.

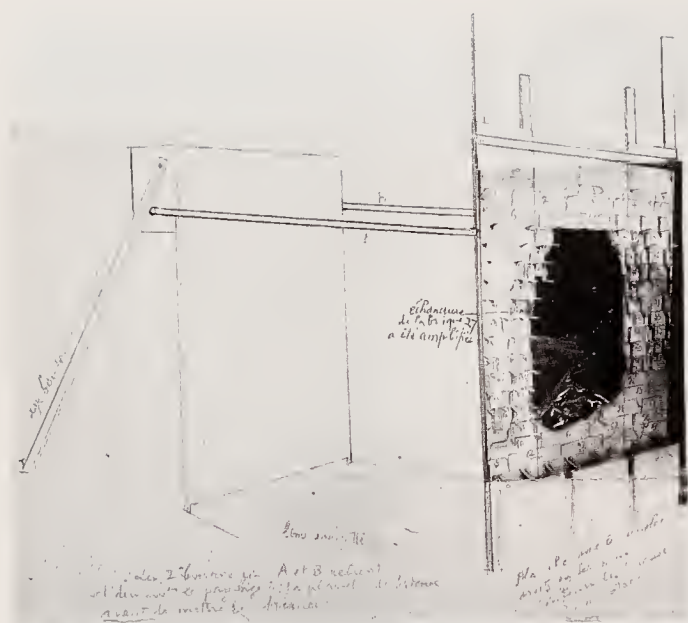




213, 214. The upper part of the door in *Etant donnés* is suspended from a metal rod and can be moved towards the sides. The lower part, on the other hand, is fixed, and its two parts lean towards the centre.



him throughout his career, as we have seen. Many of these fired-clay bricks were cut in irregular shapes, and they are all supported in a multitude of metal squares, firmly embedded in a wooden backing. Nothing, it would seem, has been left to chance: brick number 27, for example, has had a bit more broken off it so that a better view can be had of the hair of the woman stretched out in the background.¹¹ It comes as a shock to know that Duchamp would have thought of putting a framework of fictitious bricks around the 'Spanish' door, where the falsification would be easy to see, and at the same time took great care over the authenticity of the interior wall intended to remain (except for the hole) in total darkness.¹²

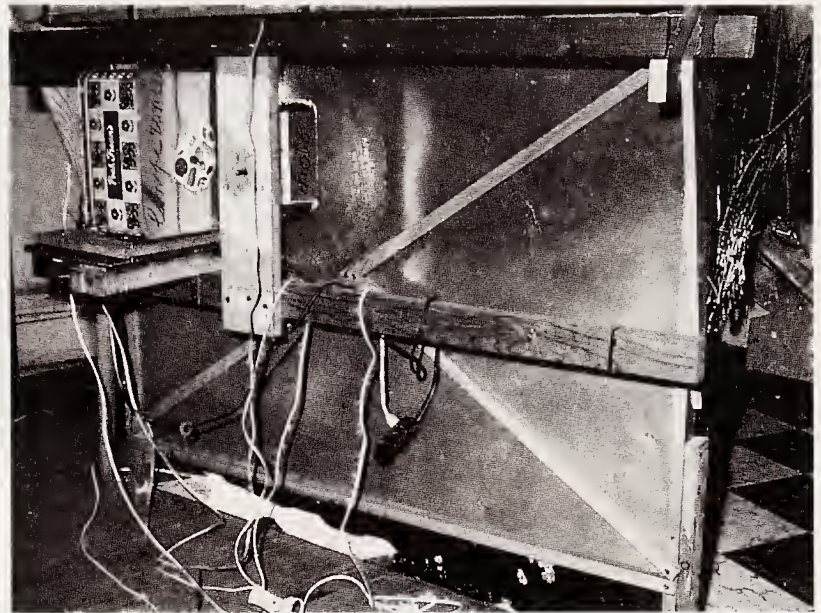


215. The 69 bricks around the hole and a drawing of the 'nude's room', from a sketch by Duchamp.

THE LANDSCAPE AND THE TABLE

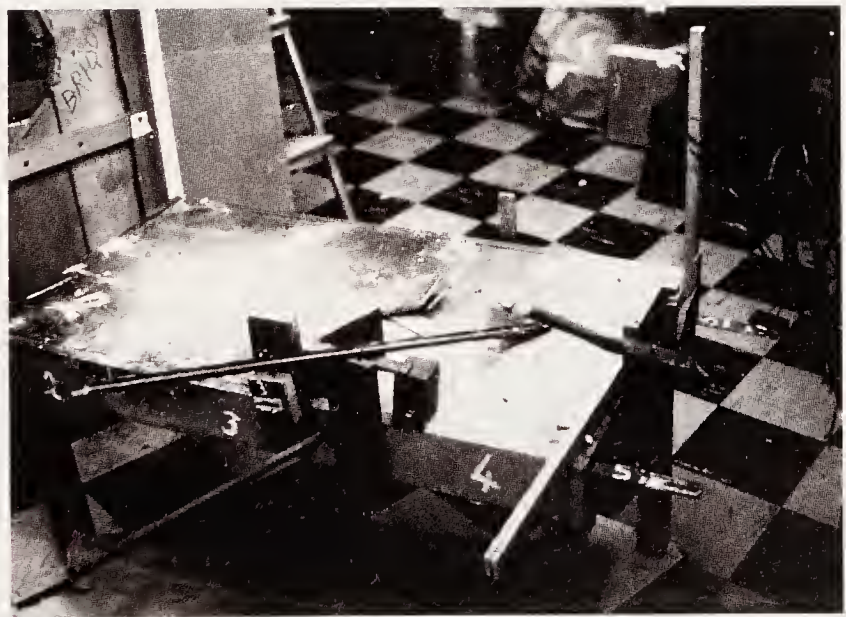
The second operation mentioned in the *Manual*, once the linoleum tiles have been laid, consists of installing the illusory *landscape* in the extreme diagonal background of the nude's room. It is a box measuring 111 centimetres wide by 160 centimetres high. The depth, unspecified in the instructions, is rather less, since only a small space is needed to accommodate a fluorescent light and angled piece of blue cardboard with cotton clouds whose shape 'leaks' on to a piece of unpolished glass at the front, where the landscape is painted (illus. 211). The technical characteristics of this part of the work cannot be seen very well by the voyeur, but everything points to the background being made of black-and-white photographs coloured with oil paints and partially superimposed (like theatre curtains) in front of a piece of Perspex.¹³ A small aperture in the waterfall zone allows the viewer to see the palpitating rays of light creating a waterfall effect. This is achieved by means of a simple and ingenious mechanism situated at the rear, which consists of a biscuit tin with a round fluorescent light inside (illus. 216); the light, which projects through a lateral aperture, is interrupted by the gyratory movement of a perforated aluminium disk rotated by an electric motor at a rate of three revolutions per minute.¹⁴ The sides and rear of this landscape-parallelipede are hermetically sealed. Duchamp decided that the whole thing should be held in place by two lengths of

216. The small electric motor moves a perforated disc through the holes of which a light passes sporadically from a fluorescent disc situated in a tin box. From the other side, this looks very much like a slowly flowing waterfall.



wood at the rear, the purpose of which would be to ensure that the landscape plane would form an angle of 91 or 92 degrees to the floor.

Between this structure and the brick wall is a *table* composed of several fixed rods, with three 'points of impact' and a carefully compartmentalized and numbered surface (illus. 217). The point of this is to allow the six bushes (bunches of dried branches) and the dummy's different parts to be positioned precisely.



217. The table/support for the dummy and the bushes, compartmentalized and numbered in order to facilitate assembly.



THE SACRIFICIAL DUMMY

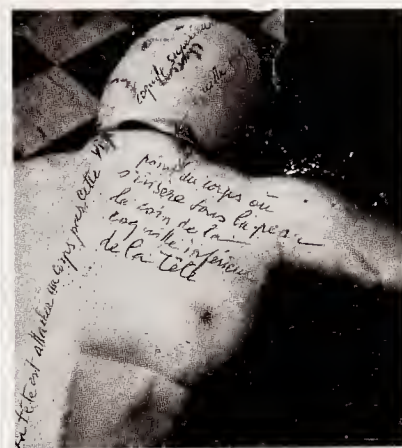
The *nude*, in fact, is composed of three parts: the main body (representing the torso, stomach, genital area, forearms and thighs), the left hand holding the lamp, and the left thigh and head. The hair is held in position by a clothes-peg. According to the *Manual*, the installation of this delicate ensemble must be preceded by placing '3 narrow bands of aluminium to which have been soldered (cold soldering) a few individual branches intended to help create the effect of the nude being buried beneath the bushes'.¹⁵ The body (headless and without a forearm or leg), lifted by two people at once, must be placed on the '3 points of impact', the aim being 'in the first place, to put the [dummy's] elbow on to the strip of wood which will later support the forearm. All this happens while the naked ensemble is being held suspended in the air' (illus. 218).¹⁶ Operations 12 and 13 are intended, respectively, for the installation of the leg and forearm: as it is difficult to disguise where these members join the rest of the body, Duchamp thought of hiding them with dry branches and leaves.

✓ This part of the work is a hollow fragment of a plaster-cast body, partially covered in coloured leather,¹⁷ with a metallic framework, and rather flat; it almost resembles a bas-relief more than a sculpture of the human form in the strict sense of the term (illus. 219). [Through the peep-holes in the door, it looks like a body offered up to love, but seen in the photographs of the *Manual* it is a mutilated doll, or the innards of a human being placed on a sacrificial altar. We are presented with an extraordinary example of the Surrealist 'double image', in the tradition of Dalí-esque paranoid criticism: we see a desirable feminine figure, but we know that it is an incomplete and artificial being.] The title of the

218. The method of positioning the dummy with half a leg missing. In these two photographs taken from the *Manual*, we see Alexina and Marcel Duchamp performing the same task.



219. The nude in the 'tenth operation' positioned on the aluminium strips with a few branches soldered to them.

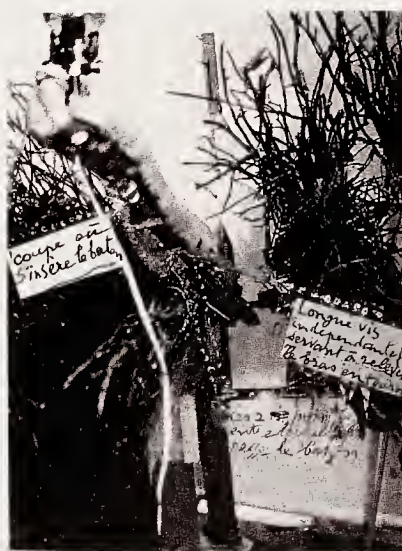


220. The dummy's head (invisible to the voyeur) with an upper and lower shell. A blond wig is held on here with a clothes-peg.

work, with Duchamp's signature and the year 1966 totally invisible to the voyeur, is written on the stump where the right arm would be on a normal body. This allows us to calculate that the instructions for moving *Etant donnés*¹⁸ were finalized between that date and the artist's death (2 October 1968).

The *head* is made up of two concave pieces placed one on top of the other (*coquille supérieur* and *coquille inférieur*),¹⁹ like egg-shells (illus. 220). ✓ There is no face, just the support for the lock of fair hair which the voyeur can see. If we take a closer look at the photographs in the *Manual*, we find that the hair, held in place by a clothes-peg, is where the face should be, and *is* the face. Are we looking at a beard? Is this another belated evocation of *L.H.O.O.Q.* (illus. 32)?

The left forearm (illus. 221) is fixed firmly to the strip of wood by ✓✓ guide rods. There is also a 'long independent screw which is used for



221. The forearm supporting the lamp, electric cable and screw which allows this part of the work to move up and down.

light, while the light from the closest one is pink; in front of them, towards the right, are three 150-watt lamps ('Century Lights') which increase the brightness of the area where the woman is lying;²¹ another spotlight, of 150 watts, must be directed, according to the *Manual*, 'vertically, right over the cunt'.²² This spotlight is attached to a wooden crossbeam with, 20 centimetres below it, a sheet of glass intended to prevent the surface of the dummy being damaged by the heat generated by the lamps (illus. 223).

The subtle lighting effect sought by Duchamp is completed by a white plastic curtain which can be rolled up, covering the whole of the left side of the nude's room (as seen by the voyeur). This curtain contributes to a mixing and multiplying of all of the lights and reflects them back into the interior, making the female figure glow like an 'apparition'.

Everything which has been said up to now conveys, I think, the technical complexity of *Etant donnés*. The materials are inexpensive and could be used by anyone keen on DIY: rustic tables, screws, wires, irregular fragments of black velvet, drawing-pins, clothes-pegs, odds and ends (such as the biscuit tin for the motor), dried branches, etc. The impression produced is one of randomness and spontaneity, which is negated by the rigorous order of the fifteen steps stipulated for dismantling and re-assembly: reading and looking at the *Manual* create the impression of an obviously home-made contraption, not at all what we are led to expect by the title.²³ The components, which resemble objects discovered by accident, play the same role as metallic items rigorously measured in a precision mechanism. Is this not another way of restating the concept which governed the conception and completion of the *Large Glass*?

THE GAS-LAMP AND PHARMACIE

The description of the Philadelphia construction, like the monitoring of the 'operations', allows us to appreciate some close connections with other works by Duchamp. This is even more apparent if we concentrate our attention on the iconography: it becomes less a question of examining works or other artistic expressions which belong to the galaxy of *Etant donnés* (we did this in the previous chapter) but of showing a few preparatory works or studies which point directly at the completion of the secret great work.

From about 1902, we have a charcoal drawing, *Le Bec de gaz* (illus. 224), with a burner which is remarkably similar to the one held by the nude many years later. This drawing is proof that Duchamp was, from early childhood, well acquainted with the form and structure of gas-lamps. Also obvious to me is the precedent of the *Pharmacie* (1914; illus. 225), one of the first ready-mades, whose genesis and significance were well explained by their maker: during a train journey to Rouen, he saw lights gleaming in the darkness, and this gave him the idea of re-creating them with the colours 'green and red, to make a pharmacy'; the following day, he dotted a commercial print of a landscape, which he came across by chance, with these colours.²⁴

As has already been pointed out, these two colours were those used in anaglyphs, a process for producing images in relief which had been invented in 1891 by Louis Ducos du Hauron.²⁵ It seems probable that Duchamp knew of this process as early as 1914. In any case, a confident application of the technique is seen in his last work, the drawing known as *Cheminée anaglyphe* (1968); speaking of it, Arturo Schwartz reproduced fragments of a letter in which Duchamp expressed his joy at having found another copy of the book on anaglyphs in the same bookshop where he had bought his first copy about 1930.²⁶ In *Pharmacie*, then, there is the implicit idea of illusory relief, with two angles of observation, as in *Etant donnés*. But there is more: we find ourselves looking at a realistic landscape with aquatic elements, and the trunks of the two trees plus the vegetation in the foreground form a kind of hollow or aperture similar to



224. *Le Bec de gaz* (1903?), one of the first precedents for the lamp in *Etant donnés*.

225. *Pharmacie* is a 1914 ready-made: the two 'points of colour', the aquatic element and the central aperture allow us to associate this work with *Etant donnés*.

- ✓ 226, 227. In *Torture-morte* (1959), Duchamp showed the sole of a foot with a few dead flies. *Sculpture-morte*, another three-dimensional work of the same year, included two real insects (Centre Pompidou, Paris).



the one produced later in the brick wall. This may be a case of unconscious connections, but is there not also some justification for associating the 'pharmacy' with the view of the operating table inside the nude's room, as seen in the photographs from the *Manual*?

THREE BAS-RELIEFS

I would also like to refer to some later works whose conception and completion maintain such a close similarity to *Etant donnés* that we ought to consider them as a relatively peripheral continuation of this great secret ensemble. In 1959, during a summer in Cadaqués, Duchamp produced three small bas-reliefs for a book which Robert Lebel intended to publish: *With my Tongue in my Cheek* is a profile self-portrait drawn in pencil to which Duchamp added a plaster fragment which is, presumably, a cast of his cheek pushed out by his tongue; *Torture-morte* consists of a hyper-realistic sculptural representation of the sole of a foot with several dead flies stuck to it (illus. 226, 227); *Sculpture-morte* is a face shown in profile, in the style of Arcimboldo, made of fruit and vegetables

made out of marzipan and with two real insects placed on the figure's 'cheeks' (illus. 227).

- Obviously, these works are related technically and stylistically to the Philadelphia montage. But there is also a thematic connection: they all show an acute sense of humour, typical of Duchamp, and this is something which we should also recognize in *Etant donnés*. In this context, it is clearer that the mutilated nude is another 'dead sculpture/torture'. Is it not her smell (the smell of her sexuality) which attracts the insects – that is to say, the voyeurs who approach the door? If we remember the case of 'Belle Haleine' or the other famous fragment from 'Morceaux moisis': 'Il y a celui qui fait le photographe et celle qui a de l'haleine en dessous' ['There is the man created by the photographer and there is the woman who breathes from down below'].

SELECTED FRAGMENTS

- Shortly before his death in 1968, Duchamp produced several engravings with the general theme of lovers in order to illustrate the second volume of *The Large Glass and Related Works* by Arturo Schwarz. One of them is entitled *Le Bec Auer* (illus. 228) and is so clearly connected to the iconography of *Etant donnés* that no commentary is necessary. But the visible presence of the masculine lover next to the naked figure holding the lamp does seem significant to me. Is the scene which the voyeur sees through the Spanish door, as I suspect, the prelude to the act of lovemaking? This engraving, in any case, represents an encounter between lovers as if it were the same as (in respect of *Etant donnés*) the superimposition of the panels in the *Large Glass*, and its subsequent breakage.

The *Morceaux choisis* in the style of Rodin, Ingres and Courbet are slightly modified copies of several celebrated works by these artists. Duchamp emphasized the latent sexual content of the originals or else invented it in his own representation. When he re-worked Rodin's *Kiss*, he repositioned the lover's right hand between the woman's thighs (illus. 229, 230). 'After all,' commented the artist, 'this must have been Rodin's original idea. It is so logical for the hand to be in this position . . .'²⁷ The connection with *Etant donnés* is reinforced by a note from around 1918, when the artist wrote: 'It might even reach this point: Problem: how to draw a straight line on "Rodin's Kiss" seen through a viewfinder.'²⁸ The tactility of the sexual interchange appears



228. The woman from *Etant donnés* and a masculine figure in *Le Bec Auer*, a 1968 engraving.



229, 230. *Morceaux choisis d'après Rodin* (1968): Duchamp moved the lover's hand in *The Kiss* (1898) to a more 'logical' position.

231. *Morceaux choisis d'après Ingres* (1968), another evocation of 'tactility' (see illus. 208).



emphasized in the two *Morceaux choisis d'après Ingres* (illus. 231), which call to mind once again the 'please touch' sign next to the 999 breasts made out of rubber (illus. 208).

Let us now have a look at the *Morceaux choisis d'après Courbet*. Duchamp copied *Lady in White Stockings* from the Barnes Foundation with an acceptable degree of fidelity, but he did add a bird at the bottom, with its back to the observer, apparently looking at the woman's crotch (illus. 232, 233). His explanation was as follows: 'It is curious, and moreover it is a falcon, which in French easily lends itself to a play on words [*faucon* = *faux con* = false cunt], so that here too we can see both a false cunt and a real one.'²⁹ So, then, as Courbet was an important source (as we shall see) for the disposition of *Etant donnés*, this engraving constitutes its commentary or reduplication in another way: the voyeur is a *faucon* (bird of prey in the sexual sense) but also a (*faux*) *con*, which, in French slang, means 'a stupid bastard'. This is because on the other side, resplendent, one sees the real cunt, without doubt the visual centre of the montage housed in Philadelphia.³⁰



232, 233. *Morceaux choisis d'après Courbet* (1968), with 'a false cunt and a real one'. But the supposed falcon (*faucon*) in the foreground was taken from the parrot of *Pollyperruque*, a 1967 ready-made (Collection Miriam Keller, Baden-Baden; published by Carol P. James).

NUDES IN A LANDSCAPE

All of this posthumous work must be connected to other distant artistic sources. In reality, if we reduce *Etant donnés* to its essential iconographic elements, we can place it in the long tradition of 'female nudes with or without landscapes', which dates back at least to the end of the fifteenth century and which has produced some of the most interesting works of Western art. The engraving *Venus and Satyr* from the *Hypnerotomachia Poliphili* (1499) shows a woman lying in a field while being undressed by a lewd masculine being (illus. 234); similar elements (nakedness, landscape, man), with the addition of the electric effects of lightning, are found in *The Tempest* by Giorgione (London, National Gallery). It was in Venetian painting that the genre came to fruition, with works such as *Venus Asleep* by Giorgione (c. 1505–10), to be followed by a long series of Titian's 'poems'. In all cases, and in other European schools (illus. 235), there is a naked female figure who offers herself as a source of pleasure to the observer's (supposedly male) glance; the model's hand or a piece of material usually covers the pubic region, which is the picture's tacit centre. Nowadays, the mythological theme and philosophical or moral intention are of little importance, so leaving these factors to one side, I wish to underline the fact that such paintings generate a visual model of both scenographic vitality and semantic

234. A female nude in a landscape painting: an engraving from *Hypnerotomachia Poliphili* (1499).





235. Naked Diana beside a small waterfall in *The Nymph of the Fountain* after Lucas Cranach (Metropolitan Museum of Art, Robert Lehman Collection, New York).



236. A dissected woman and scientific voyeurs on the cover of the famous *De Humani corporis fabrica* by Vesalius (1543). The woman's posture is reminiscent of the *Dead Christ* by Mantegna (1480?; Brera, Milan).

versatility. The same structure can be traced from representations of Venus to Goya's *majas* or the female slaves of nineteenth-century painting, including the numerous variations of the theme of 'painter and model', whose ultimate glorious chapter is to be found in Picasso's later works.

ANATOMICAL THEATRE

This pictorial and theatrical convention always associates, explicitly or tacitly, the presence of a naked female body with a male voyeur. A good example is the cover of Vesalius' treatise on anatomy, *De Humani corporis fabrica Libri septem* (1543; illus. 236), which we have already mentioned (illus. 172, 173); it shows a crowd of *male* student-voyeurs examining the open body of a female lying on a table in the middle of a dissecting

room; it underlines just how much scenic representation there is in the engraving. It is curious, but not that surprising, that the posture of this body is so similar to the nude's in *Etant donnés*: let us recall once again that the study of anatomy was traditionally obligatory for artists, and that many founders of the avant-garde (Dadaists and Surrealists in particular) made use of the transparency and fragmentation of dissected bodies as metaphors with complex meanings.³¹ There is absolutely no doubt that Duchamp knew many books with anatomical plates (we mentioned this during our discussion of the *Large Glass*), and it is probable that he was encouraged by the unconscious memory of these sights when he conceived his grand illusionist montage. Why should he not have had Vesalius in mind, the mythical father of them all? This woman's corpse, daringly foreshortened, finds a plastic echo in Mantegna's *Dead Christ* (c. 1480; Brera, Milan), and I believe that one or both of these precedents paid an important role in Duchamp's conception of *Torture-morte* (illus. 226).³² So, the concealment of the soles of both feet in *Etant donnés* must have been a conscious act: the female figure shows, without any possible distraction, her body open (dissected?) in the area of her sexual organs; her legs are so wide apart that we can imagine a double crucifixion, as if she had also been nailed to the horizontal beam by her lower extremities.

NINETEENTH-CENTURY EXAMPLES

The theme of the naked woman (and the voyeur) was a source of great fascination for nineteenth-century painters. We might say, forcing things a little, that kitsch painting had only two basic themes, repeated with such overwhelming insistence that the avant-garde's vehement reaction was fully justified: moralizing patriotism and camouflaged pornography. Nearly all history paintings belong to the first group; in the second one are mythological nudes interpreted by means of contemporary female models. Cabanel, Bouguereau, Gerôme and many others filled the Salons with their 'births of Venus', provoking the logical reaction from the caricaturists (illus. 237). A painting as significant as *Friné before the Judges* by Gerôme is a good illustration of the genre (illus. 238): the assembled male intellectuals find it difficult not to show their admiration when the young woman appears naked before them; it is not the beauty of her face (Friné covers it with her right arm) that the judges admire, but the beauty of her body (symbolically beheaded) which is revealed when she is



237. The proliferation of mythological nudes in the Salons provoked the appearance of caricatures such as this one by J.J. Baric (1863).

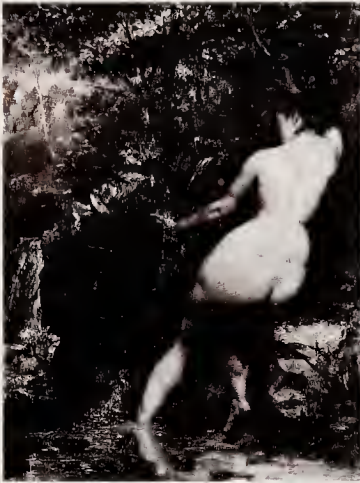
238. The young woman (symbolically beheaded) whose beauty dazzles the assembled males: *Friné before the Judges* by Jean Léon Gérôme (Hamburger Kunsthalle).



‘stripped bare’. This is almost a sickly sweet version of the cover to Vesalius’ treatise. *Étant donnés* is a violent whiplash against this kind of trite mystification of the erotic impulses: the nude which you see is the object of your desires, since the work lacks the complacent chorus of dirty old men who allow the transfer of a conscience guilty of lubricity. Duchamp’s work does not allow moral hypocrisy to enjoy the sensations of the voyeur on historical or literary pretexts. This is why it is so disturbing and radical.]

An evolution towards this position can be detected in some of the Realist paintings of the nineteenth century. Although Duchamp formally rejected the ‘retinal’ dimension of Courbet and blamed him for art’s moving away from the world of ideas,³³ there is ample proof of the impact the earlier artist’s work had on him. The observer’s position was important for both men.³⁴ Many of Courbet’s female nudes lack the usual inhibitions of the time: in *The Artist’s Studio*, ‘the truth’ was copied from a photograph but is still an allegorical figure, just as *The Bacchante* (1844–45) is mythological; in other cases, however, the anecdote disappears. The powerful erotic charge of Courbet’s nudes was well understood by Duchamp, who drew on the painting *The Origin of the World* (illus. 271) in *Étant donnés* and transformed (as we have seen) *The Lady in White Stockings* (illus. 232).³⁵ He may also have made use of *The Spring* (1868; illus. 239), with its waterfall cascading on to the female form, so obviously similar to the erotic allegory in the Philadelphia Museum.

The nude, later on, provided excellent material for those who wished to ridicule the hypocrisy of kitsch art. Manet’s *Olympia* (1865) is a



239. Courbet's tactile materialism in *The Spring* (1868).

240. Cézanne took the eroticism out of the theme of the female nude in a landscape: *The Bathers* (1906; Philadelphia Museum of Art).

prostitute who looks at us as if we were asking for her services. Have we not offered her those flowers carried by the black servant girl? The sense of unease created by this work at the time had much to do with the implication of the viewer (fully qualified as a lascivious voyeur) as a client of the goddess who possessed so many human and so few 'Olympian' qualities. There is no affectation, however, about the technique, and it is obvious that the artist did not have the same understanding of the word 'finish' as did his contemporaries.³⁶

PRECEDENTS OF THE AVANT-GARDE

There are, then, two provocative aspects of *Olympia*: that which is elicited by the theme (the way it shocks the observer), and that which is purely technical. Although these are two very different things, they are indirectly connected, as is clear from the naked figures painted by some of the Post-Impressionists. Let us consider the case of the *Bathers* by Cézanne (illus. 240). These ideal female beings are living through a moment of harmonious communication with nature, but there is no sensual complacency in the treatment of either the bodies or the landscape. By means of its very technique, the absence of emotion obstructs any possibility of establishing moral alibis. Such is the line which Picasso was to pursue to its logical conclusion in *Les Femmes d'Alger* (1907).

More explicit ideology is found in the works of Matisse, heirs to the anarchistic fantasy expressed in such pictures as *In the Time of Harmony* by Signac (1895). *Luxe, calme et volupté* (1904-5) contains a (clothed)

241. Matisse substituted sensuality for the 'pleasure of the glance', as can be appreciated in *Luxe, calme et volupté* (1904–5; Musée d'Orsay, Paris).



male voyeur (illus. 241), but neither in this work nor in any of his later ones (such as *Le Bonheur de vivre* [1905–6]), or in the different versions of *Luxe*, is there a specific sexual implication on the part of the observer: the sensual has been replaced by the sensory; the depth of the picture dissolves on the painting's surface; and retinal pleasure makes erotico-literary delight irrelevant. This has nothing to do with the kitsch pornography of tasteless art, nor is it what we find later in Duchamp's montage.

The nearest antecedents to *Etant donnés* are, as was to be expected, found in Surrealist art. A few of the nudes photographed by Man Ray occupy a midway position between the sexual metaphors in the shape of machines (peculiar to Dadaism) and the erotic Surrealism of such artists as Ernst, Dalí, Magritte, Delvaux and so on. *Le Violin d'Ingres* (1924) is a complicated joke about the great nineteenth-century artist and the 'disinterested' attachment (play *that* violin?) felt by every 'boy next door' (illus. 242, 243). Let us remember that Marcel Duchamp, many years later, dreamed up his *Morceaux choisis d'après Ingres* (illus. 231) in the creative wake of *Etant donnés*.

Other photographs such as *Erotique voilée* (illus. 243), published in the magazine *Minotaure* in 1934, may be considered as figurative and chronological bridges which lead from the universe of the *Large Glass* to the carnal visualization of the Philadelphia montage. The female model, dirty from the machine grease, 'veils' her own face with her left hand.³⁷ These aspects, along with adventures shared by the two friends, suggest (as we shall see) Man Ray's considerable influence on Duchamp.

If we consider some typically Surrealistic creations, we will be able to



242, 243. Some nudes by Man Ray show the transition from the mechanico-parodic to a hyper-realistic tactile eroticism: *Le Violon d'Ingres* (1924) and *Erotique voilée* (1934?).

recognize the raw material of nearly all the elements of *Etant donnés*. Breton and his friends extolled the presence or appearance of a woman as if she were the materialization of some vivid dream. This idea forms the basis of *Je ne vois pas la [femme] cachée dans la forêt*, a montage by Magritte first exhibited in 1929 (illus. 244, 245):³⁸ photographs of sixteen Surrealist writers and artists (all male), eyes closed, surround a naked female at the centre – ‘in darkness’ – of the picture. Next to this antecedent we can place another, also by Magritte: the door with the irregular hole in it which he dreamed up for *The Unforeseen Response* (1933; illus. 245): here there is a clear similarity between the lay-out – with the ‘far end’ of the room ‘in darkness’ – and the room in Philadelphia.

The idea of the woman hidden in the wood (or in a field), revealing herself to the artist’s stunned glance, is implicit in a photograph included in an article by Max Ernst called ‘Les mystères de la forêt’ (illus. 246, 247):³⁹ the trunk and branches of a fallen tree form the central part of a woman’s anatomy, ‘mutilated’ by the photographer’s enframement. Something similar, though more explicit sexually, is found in works by Diego Rivera from the end of the ’30s: *Le Couple* (1938; illus. 247) shows two trees brought to life and on the point of making sexual contact; the female trunk, with her legs/branches spread wide, makes an ostentatious display of her ‘shaven’ sexual organs. The creator of *Etant donnés* must have been familiar with this work.⁴⁰

244, 245. Magritte's work as precedent: *Je ne vois pas la [femme] cachée dans la forêt* (1929) and *The Unforeseen Response* (1933).



Now let us take a look at a couple of pictures by Delvaux. *Le Viol* (illus. 248) was reproduced in the same number of *Minotaure* as Duchamp's 'Rendez-vous du 6 Février 1916':⁴¹ in the background is a naked woman, with her legs spread wide, lying under bushes in a position similar to that of the Philadelphia dummy. If we combine this element with the general lay-out of *Sleeping Venus* (1944; illus. 249), the erotic and macabre connotations of *Etant donnés* which we hinted at earlier are reinforced. The skeleton advancing towards the sleeping woman in Delvaux's picture is identified with the voyeur: this is Death approaching with the sweetness of a dream. Should we once again point out that Duchamp created his montage to be shown after his death? 'Anyway, it's always the others who die' reads his epitaph in the Rouen cemetery.⁴² For the same reason, any voyeur who leans against the holes in the Philadelphia door sees with the eyes of its creator, represents the dead and resurrects him with the act of looking.⁴³

There seems to me to be an even more direct connection between



✓ *Etant donnés* and Hans Bellmer's doll, which was a paradoxical object, a true human palindrome, whose unlikely postures suggested a tortured and intense eroticism. Bellmer embodies the Marquis de Sade element of Surrealist poetry and is closer to Bataille's mental universe than to Breton's poetic romanticism.⁴⁴ Between 1938 and 1949, Bellmer took a series of disturbing colour photographs with the general title *Les Jeux de la poupée*: his mobile sculpture appeared to be hung up and 'crucified' by the feet, half-naked, dragged along a road or over the straw in some barn. One could imagine it being made love to or tortured in the solitude of the countryside (sometimes at night). Some of these photographs were reproduced in two issues of *Minotaure* in association with Duchamp's work,⁴⁵ and one of them (illus. 250) possesses all the characteristics of the Philadelphia montage. The voyeur is half-hidden in the background, behind the trunk of a tree, and in the foreground we see a naked body hanging from another tree (female pendant?). By contrast, Duchamp inverted the position of the players, and if the female figure is in the foreground it is because the observer is being converted into the hypothetical lover and/or torturer. Others of Bellmer's photographs might have provided a more or less unconscious iconographic basis for the posture adopted by the female figure in *Etant donnés* (illus. 251).

246, 247. The woman-tree, a particular example of the Surrealist 'double image': a photograph used to illustrate an article by Max Ernst (1934) and *Le Couple* by Diego Rivera (1939). These images were published in *Minotaure*, nos 5 and 12-13.

ABOUT THE OPTICAL DEVICE

Generally speaking, there is also no shortage of precedents for the optical devices. The idea of having absolute control over the angle of observation, of obliging the observer to 'spy' by making him discover the



248, 249. The precedent by Paul Delvaux: *Le Viol* was reproduced in *Minotaure*, no. 10 (1937). The voyeur, approaching from the left, appears as Death in *Sleeping Venus* (1944; Tate Gallery, London).

(possibly forbidden) object of his desires through some peephole, is not unconnected with certain traditional artistic techniques (illus. 252), as well as with works by members of the avant-garde. We have already pointed out the overall similarity between Duchamp's lay-out and the engraving by Dürer which shows an artist drawing, in perspective, the figure of a woman lying on a table, at the other side of a window-viewfinder (illus. 253).⁴⁶

Duchamp's fascination with stereoscopy is also obvious, since not only had he already produced (in 1918–19) his ready-made *Stereoscopy by Hand* (illus. 185), but he must have been inspired by the sight of women (as we shall see) in many pornographic images of this sort that appeared

250, 251. *Les Jeux de la Poupée* by Hans Bellmer must have had a profound effect on Duchamp. The photograph with the voyeur hidden behind a tree was reproduced in *Minotaure*, no. 10 (1937).





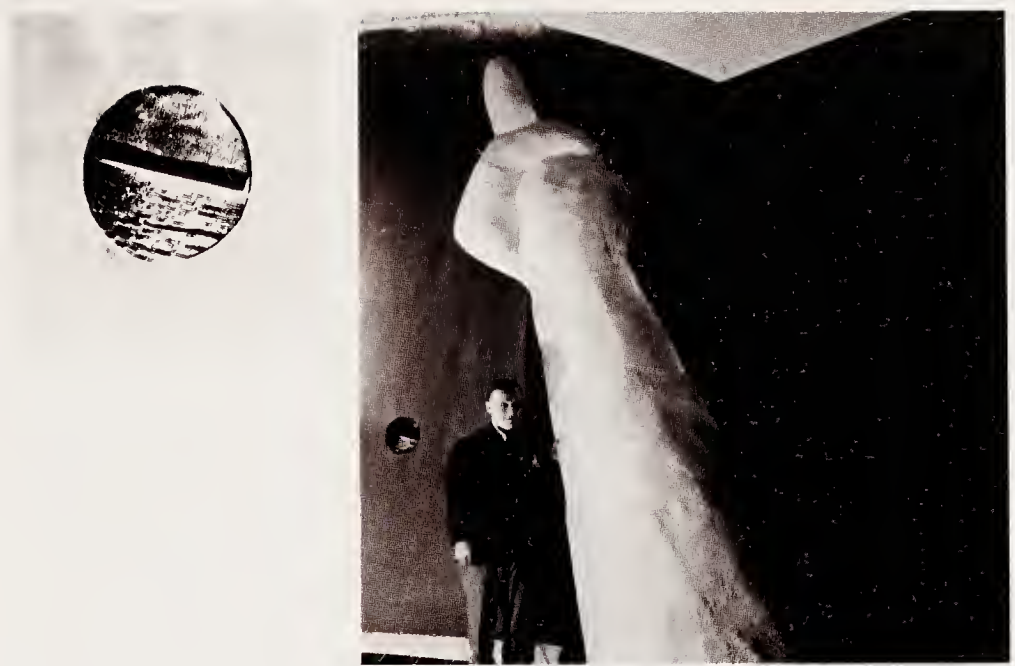
252. Spying through the keyhole was a recurrent theme in popular erotic iconography. These 1910 postcards formed part of an almost cinematographic sequence of undressing.

253. The voyeur ('precision artist') and the woman in the engraving by Dürer from *De symmetria humanorum corporum* (1532).

before the Second World War. The nude always had 'mechanical' dimension in Duchamp's work, from the *Nude Descending a Staircase* (illus. 290) (an almost literal evocation of the diagrams obtained with Marey's photographic 'gun') to the complex machinery of the *Large Glass*. It seems clear, in the case of *Etant donnés*, that there is a connection with the camera. The peep-holes in the door open up for the voyeur, like a snapshot, and his conscious mind registers what he sees; let us not forget that the viewer is situated in a true 'camera obscura', separated from the illuminated area containing the woman by a black barrier which is the room of bricks (illus. 211). This can have other implications. We know



254. The voyeur spying on *Illuminated Pleasures* (Salvador Dalí, 1929). This picture was reproduced in *La Revolution surréaliste*.



255, 256. A peep-hole and an illuminated seascape were the basic ingredients for *Le Rayon vert*; next to it stood *La Main blanche* by F. Kiesler (*Le Surréalisme en 1947*, Galerie Maeght, Paris; photos by Denise Bellon, published by H. Molderings).

that ordinary photography produces a bi-dimensional reduction of reality, but when the plate (the voyeur) is three-dimensional, what is recorded, by the logic of symmetry, must exist in the fourth dimension. So, the desire evoked by the snapshot is what allows us to transcend the world limited by normal perception. Love is life, or rather it is situated on another plane where life and death have conquered their secular antagonism . . .

In *Illuminated Pleasures* (1929; illus. 254), Salvador Dalí adopted the voyeur's optical device on which the frequently pornographic 'peep-shows' common in the first decades of the twentieth century were based. To the right, a man observes through a peep-hole the hypothetical pleasures contained inside a large prismatic box; in the foreground, we see the profile of Dalí as the 'Great Masturbator'. The box is painted sky-blue as if it were the background of an illusionistic landscape; thanks to several apertures, the presence of a grasshopper and a sea-snail can be guessed at. Duchamp must have been familiar with this work since it was reproduced in one of the issues of *La Révolution surréaliste*, with the voyeur's details shown separately on another page.⁴⁷

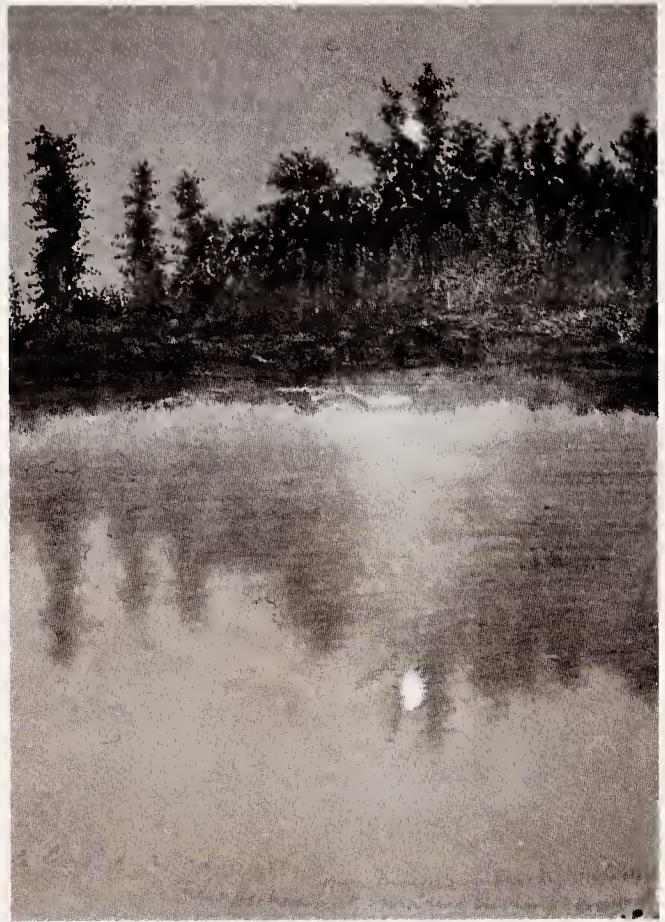
We have already mentioned the optical device designed by Friedrich Kiesler (helped by Duchamp) to show some of the works of the *Boîte en valise* through an individualized peep-hole at the 'Art of this Century' Gallery in 1942 (illus. 203). The following year, in the issue of *VVV* with a front cover designed by Duchamp,⁴⁸ Kiesler published *Design-*

Correlation, a complicated architectonic montage which was also produced for the Peggy Guggenheim gallery; on view, among other things, was an oval peep-hole in wood with a diaphragm/eye which opened and closed at will, revealing an object poem by Breton. These two artists collaborated again at the *Surréalisme en 1947* exhibition which took place at Galerie Maeght in Paris. On display, among other things, was a 'Superstition Hall' with a large green curtain with a little round window cut out of it, through which could be seen the illuminated photograph of a calm sea (illus. 255, 256). This device was described in the exhibition catalogue in the following manner: 'A porthole lets Marcel Duchamp's "Green Ray" pass through it.' There seems to be a direct allusion here to Jules Verne's novel *Le Rayon Vert* (1882), in which we read of the doubts of a woman in love with two men of very different temperaments.⁴⁹ We must not overlook the fact that green is a colour with strong implications in Duchamp's work; in the same room of the exhibition, there was, moreover, a large sculpture by Kiesler entitled *La Main blanche*, which seemed to represent a gigantic obscene gesture (illus. 256). The ensemble allowed viewers to become acquainted with the peep-hole, which was like a tiny observation point out of which came the 'green ray', but which also was like a receptacle for the finger, as is suggested in a photograph of the installation. This device, then, was very close to *Etant donnés*: it was 1947, and Duchamp had begun to work on his montage the year before. It is probable that the 'Superstition Hall' helped him to create a profile for his project by orienting it towards a scenographic work in which the voyeur was considered, without escape or excuse, as an actor taking part in a love scene.

MORE CONSIDERATIONS ABOUT THE DOOR, THE LANDSCAPE, THE WATERFALL . . .

Let us consider other precedents and direct sources for the three visible elements in *Etant donnés*: the door, the landscape and the woman. We have already spoken about what the door is made of and where it comes from, but we did not say that in its place of origin it opened towards a patio or yard, a common feature in the country houses along Spain's Mediterranean coast. It is possible that the memory of this original position is preserved in the sudden appearance of a bright exterior when we believe that we are about to throw ourselves into a dark interior: 'Doors are pieces of shade,' we read in *Dictionnaire abrégé du surréalisme* . . .⁵⁰ The

257. *Moonlight on the Bay at Basswood* (1953; Philadelphia Museum of Art), a seascape produced with pencil, pen, talcum powder and chocolate.



rustic door guarding the most valuable of our treasures is an archetype of the collective unconscious, and it might be useful to look for its concrete antecedents. One of them, published by Adcock, is the work by Gerôme entitled *The Guardian of the Harem* (1859), in which an armed man stands in front of a closed door behind which we imagine the wives of some Muslim potentate.⁵¹ But the low archway in this picture, while similar to that in the Philadelphia work, was not anticipated in the three vinyl rectagonals described and photographed in the *Manual*. If Duchamp thought at the beginning, as seems the case, of a lintel, the similarities with Gerôme's picture would be purely fortuitous.

The landscape, one of the three or four traditional genres in the history of art, had been the war-horse of the Realists and the favourite excuse for the Impressionists' 'retinal' complacency. Considering his general attitude, one might say that Duchamp must have hated the more or less illusionistic representation of the natural world. Nevertheless, this is a theme which runs throughout his work. During his formative years,

up to 1910, he produced numerous landscapes using various techniques. Landscape is also one of the dominant themes of the *Large Glass*, testimony to which is a note, among other things, next to the technical details for painting the chocolate grinder, on which he wrote: 'A backdrop of trees (An ideal landscape!!!!!!)'.⁵² We have already spoken about the ready-made *Pharmacie* (illus. 225) whose connection with the machinery outlined on the glass now seems less hypothetical. In August 1953, Duchamp painted another seascape with trees in the background and called it *Moonlight on the Bay at Basswood* (illus. 257). This little work was run off as a grateful gesture for the hospitality shown him by the Hubachek family, in whose country house, situated near the Canadian border, the artist had stayed for a few weeks. The most notable thing about it is the technique: pencil, fountain pen, talcum powder and chocolate on blotting paper. There are too many coincidences here with the dust on the sieves and the material which bachelors grind for us to consider a connection with the *Large Glass* accidental. It seems to me that this sexualization (unconscious?) of a realistic landscape converts *Moonlight* into an important link between the *Large Glass* and the background of *Etant donnés*.

The meaning of all this can be better understood if we refer to an important tradition of popular iconography. Throughout the nineteenth and during the first half of the twentieth century, there was a proliferation of engravings, photographs and stereoscopic pictures showing naked women and couples making love on the grass, or half-hidden in the bushes (illus. 258, 259). Obviously, those who created or used these images had no concept of the natural landscape as being some sort of Neoplatonic emanation of divine beauty (in the tradition of Renaissance

258, 259. Love in the open air: a popular lithograph (1830-40?) and an oleograph on a tobacco pouch (c. 1850).





260. In the background of *Etant donnés*, Duchamp reproduced part of this photograph of a Swiss landscape, which is preserved among his personal papers (Philadelphia Museum of Art).

261. Nude in paraffin (clear), on a landscape photograph (c. 1947?; Philadelphia Museum of Art). It appears that when Duchamp produced this work, he had still not adopted the idea of the moving waterfall or the voyeur's optical position behind the door.



poetry). Rather, they saw it as a framework for instinctive physical enjoyment devoid of any cultural mask.

The specific source for the background of *Etant donnés* can be found ✓ in a photograph of a Swiss landscape with trees, mountains and a waterfall (illus. 260).⁵³ Although Duchamp copied the image of a real place, what is important is that it contains the archetypal ingredients of the pastoral tradition, suitably filtered through the conventions of Baroque Classicism (Domenichino, Poussin, Claude Lorrain . . .) and the whole of Romantic landscape painting. In an initial study, bequeathed by Alexina to the Philadelphia Museum, the female figure appears literally to be lying on top of the stones and trees, with her genitals angled so as to suggest that they are either the waterfall's destination or its source (illus. 261). In this little work, Duchamp combined the photograph with clear paraffin (I do not believe that it is natural wax, as has been said, since the



262. The waterfall used in the production of electricity, from a James Lefeld catalogue advertising turbines (1896).



263. Marcel, in the foreground, and Alexina, in the background, in front of a natural waterfall (photograph by Denise Browne Hare, taken at the beginning of the 1960s and reproduced by Gloria Moure).

latter is more opaque), pencil and ink, which indicates that he already wanted to create an effect as realistic as that of a diorama.⁵⁴

✓ Falling water has always been essential for the production of electricity. In industrial illustrations dating from the end of the nineteenth century, power stations are frequently shown as being supplied by pipes, while waste water falls among rocks. In the picture which appears in a booklet by James Lefeld (illus. 262),⁵⁵ we see a building which houses turbines in the same position in relation to the waterfall as the woman occupies in *Etant donnés*; she is the true 'power station' fed by the metaphorical cataract which emanates from her male lover . . .

Let us continue with the waterfall. There is a photograph (taken somewhere in Catalonia at the beginning of the '60s) in which we see Duchamp in the foreground, sitting in the open air at a restaurant table with a check-patterned oilcloth or tablecloth; Alexina is in front of him, and behind her we can see a powerful jet of water (illus. 263).⁵⁶ There is no doubt that this snapshot was 'controlled' by the artist, who must have had the landscape in *Etant donnés* in mind at the time. He must

✓ also have been thinking about earlier works while he was working on this complex montage; let us recall what we have already said about

264. *Paysage fautif* (1946), made with human semen, was in the *Boîte en valise* dedicated to the Brazilian sculptress Maria Martins.



Fountain and how male secretions accentuate the urinal's female function.

The most revealing publication on this theme is the work recently published by Ecke Bonk: the *Boîte en valise* number XII, dedicated to the Brazilian sculptress Maria Martins, contains an original measuring 21 by 17 centimetres and dated 1946 with the title, inscribed by Duchamp himself, *Paysage fautif* (illus. 264). The work consists of a rectangle of map cloth stained and partially discoloured by the dried remains of a viscous fluid, identified as human semen by the FBI laboratories in Houston, Texas, and by the Conservation Department of the Menil Collection.⁵⁷ What we have here is a painting produced by means of a masturbatory orgasm (literally), a sarcastically blunt reply to the claims for the 'pleasure of artistic creation' exalted by Romantic tradition. It is not illogical to think that this may have been a private message to the owner of the *Boîte*; but given its independence (or precisely because of it), the connection between this 'landscape' and *Etant donnés* seems to be confirmed.

Perhaps it is forcing things a little, but the stain on this little picture has a human form similar to that of the dummy in *Etant donnés*.⁵⁸ Maria Martins, an old friend of Duchamp and a fellow-traveller of the Surrealists, owned



265, 266. Maria Martins also had two important preliminary studies for the nude in *Etant donnés*: a 1944 drawing which shows the figure with pubic hair, and a bas-relief covered in leather on a background of velvet (1948–9).

three preliminary studies which were of great importance for the genesis and development of the Philadelphia montage: a bas-relief of the nude 50 centimetres high (illus. 266); another version of the figure drawn on paper (with pubic hair; illus. 265); and the plaster model for one of the breasts.⁵⁹ This suggests that we might hazard a few conjectures – for example, that *Etant donnés* may have been conceived originally as a private erotic game between Marcel Duchamp and Maria Martins (she was about eleven years younger than he was). Whatever the case, it seems that Rose Sélavy's transvestism did not imply any deviation in Marcel's sexual orientation in the traditional sense of the word.⁶⁰

. . . AND ABOUT THE MUTILATED WOMAN

To continue to develop this hypothesis, I must speak about the woman. I shall begin by saying that, in my opinion, the model of the body used in the initial studies does not appear to be the same as in the final version. The first sketch for *Etant donnés* is a pencil drawing on paper, signed and dated 1944 (illus. 265); both legs are complete, there are no arms or head,

267. Gouache drawing on transparent Perspex, with perforations (1950?; Collection Jacqueline Monnier, Villiers-sous-Grez). This work seems to show a primitive attempt at producing a model 'by making dots' as in traditional sculptures.



and the dark spot of the pubic hair is clear.⁶¹ The same figure, although a little fatter and without the lower parts of both legs, can be seen in the plaster relief, covered in leather and mounted on velvet, with the following inscription: *Cette dame appartient à Maria Martins/avec toutes mes affections/Marcel Duchamp 1948/49* (illus. 266).⁶² Almost identical is the gouache drawing on transparent, perforated Perspex which is dated 1950, but we cannot be certain how accurately (illus. 267). It seems clear that Duchamp was trying for the first time to use a technique for transferring from a flat to a relief surface (or vice versa) by using dots similar to those employed by sculptors and fresco painters, but he had to abandon this approach when he completed the definitive version.

In all of these works, just as in the small bas-relief in the landscape photograph which we mentioned earlier (illus. 261), we are confronted by a gaunt body with relatively narrow hips and powerful shoulders. The nude which we see in Philadelphia, on the other hand, has a softer female body, is less muscular and has a lock of blond hair cascading over her left shoulder. I know of no photographs either of Alexina or of Maria Martins (and certainly not in this posture) that would allow us to say with certainty that both could have served as models in the two successive phases of the work, but a lot of information points us in this direction. If

our hypothesis is correct, Duchamp first developed certain ideas with or for Maria Martins (c. 1944–50) and then re-used them, after 1954, copying a new image of a body which would have been that of his wife, Alexina (some twenty years his junior). There is no evidence that in the first phase, he foresaw the scenographic lay-out with the peep-holes for the voyeur, nor is it clear that the female figure was holding the gas-lamp. As Duchamp and his wife did not begin to take their summer holidays regularly in Cadaqués until after 1958 (that is where the door in Philadelphia came from), we have no choice but to suppose that the final meaning and form of *Etant donnés* were defined late on, at the end of the '50s or in the first half of the '60s.

The woman, in any case, seems to confirm Duchamp's old saying that 'A picture which doesn't have impact is not worth the bother.'⁶³ It is impossible not to be disturbed by the sight of the body lying on top of the bushes. If this were an illustration or programmatic reaction against some specific stance adopted by the avant-garde, we might think of it as the belated echo of some Futurist, violently anti-Romantic manifesto:

Yes, we despise the woman placed on a pedestal, the machine of voluptuousness, the poison-woman, the tragic woman-curio, the fragile woman, obsessive and pernicious, whose voice is full of fatality, and the dreamy locks grow longer and extend into the luxuriance of the woods bathed in moonlight.⁶⁴

✓ What we have here, then, is a sort of inversion or negative photograph of that decadent nocturnal figure, a highly sexed woman who appears in the full light of day holding the lamp (a symbol of virility) in her left hand in a gesture which the voyeur may interpret as an invitation.

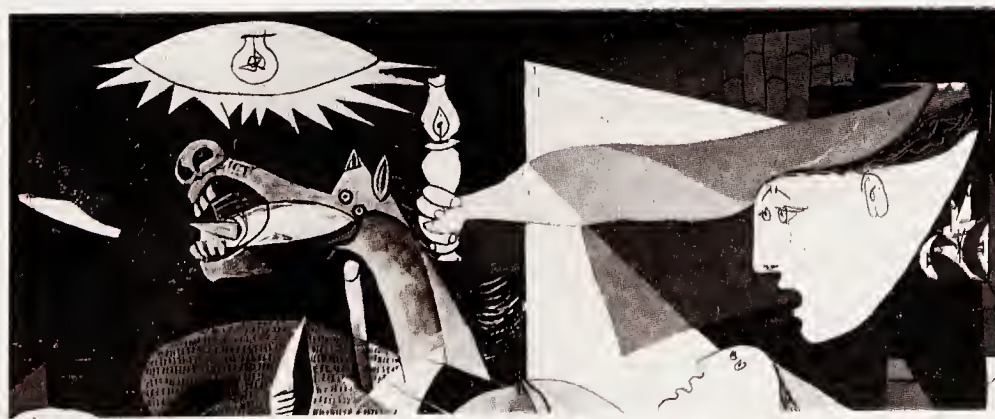
Does the woman holding a lamp or torch not figure in ancient iconography? How many figures of this type can be found in Cesare Ripa's *Iconologia*? *The Truth* by Jules Lefèvre (c. 1859; Musée d'Orsay, Paris)⁶⁵ belongs to this tradition of the Baroque allegory; the same can be said of Bartholdi's Statue of Liberty, the monument-cum-symbol par excellence of the United States. This last work must have been firmly etched in Duchamp's memory, because he used it when he was designing the cover for André Breton's book *Young Cherry Trees Secured Against Hares* (New York, 1946).⁶⁶ Also plausible is the precedent for the Welsbach burner designed by G. M. Nataloni about 1895 (illus. 268, 269), whose obvious similarities with *Etant donnés* are clear.⁶⁷ This may explain why Duchamp chose this brand and not that of a competitor.⁶⁸ It helps to remember that *bec*, in addition to being the mantle or burner on a gas-lamp, also means

268, 269. Some precedents for the woman with the Welsbach burner; an 1895 poster by G. M. Mataloni and a postcard from c. 1900 (unearthed by J. Clair).



the beak (of a bird) and a kiss, all of which fits in well with the overall erotic theme (illus. 269). Another literary source may have been Jarry's untranslatable play on the words *bec* and *gaz* in 'Degas, celui qui bec; Becque, celui qui gaz.'⁶⁹

After all that has been said, and although it makes sense to think of the nude as a sarcastic allegory of the truth and/or freedom, this attitude still surprises us. In this connection, let us turn to the most famous picture of the twentieth century, *Guernica*. Since Picasso painted it for the Spanish Republic's pavilion at the Paris Exhibition of 1937, it has not failed to elicit comment, and its influence on many of the world's artists is obvious. This work, on view for many decades at the Museum of Modern Art in New York, was one of pillars on which the New York School was founded. Now, Duchamp's attitude towards Picasso was never very sympathetic,⁷⁰ nor did he have anything in common with the rhetorical mysticism of the Abstract Expressionists; it



270. Does *Etant donnés* contain a sardonic comment about Picasso? Detail from *Guernica* (1937).

is well known that they were merely enthusiasts of Pop art who rescued the creator of the *Large Glass* and *Fountain* in the '70s and converted him into a twentieth-century idol. It is not beyond the bounds of possibility that Duchamp wished to poke fun at Picasso and the Transcendentalists by creating a mirror image of *Guernica* with *Etant donnés*; opposed to the great mural intended for collective contemplation is the non-transferable closeness of the individual voyeur; in contrast to the 'edifying' nature of art (it denounces the bloody cruelty of an act of war) is the affirmation of individualized libidinal desire; opposed to dark and shocking realism (black and white) is the splendid colour of a brightly lit landscape; in contrast to the Expressionist-Cubist deformation of bodies is the ardent realism of three-dimensional objects. And so on and so forth. The arm which holds the Welsbach burner might be another scathing comment on the woman who, in *Guernica*, attempts to light the bulb/sun with an old lamp she holds in her hand (illus. 270).

THE CUNT . . .

One does not have to be very bright to understand that the nude in *Etant donnés* holds the source of the 'greenish' light aloft in order to throw more light on to her sexual organs, the true geometric centre of the entire work. We have already seen that the work contains powerful overhead illumination from a spotlight which, according to the *Manual*, 'must shine straight down, right on to the cunt'.⁷¹ The history of the female sex organs, as they appear in the visual arts, is still to be written; Duchamp was not the first to convert this part of the body into the primordial matter of a work of art. Leaving primitive and prehistoric sources to one side, we have, in Western art, the extremely interesting case of Courbet. He gave us, as we have seen, *The Lady in White Stockings*, with her 'real cunt' (according to the *Morceaux* chosen by Duchamp [illus. 232]). Even more explicit was *The Origin of the World* (1866; illus. 271), a picture which Courbet painted for his regular client, the Turkish ambassador Khalil Bey: the reclining female nude reveals her genitals in surprisingly close proximity to the observer; this daring foregrounding 'cuts' her body, preventing us from seeing her head (presumably covered) and extremities; it is more than likely that Duchamp had this picture in mind when he produced *Etant donnés*.⁷²

What we must also consider is stimulus from Rodin's work which inspired another of the *Morceaux*. The creator of *The Kiss* represented *Iris*

271, 272. Two great works of art from the nineteenth century with female sexual organs as their centrepieces: *The Origin of the World* by Courbet (1866) and *Iris, Messenger of the Gods* by Rodin (1890?). Duchamp found both artists interesting, but for different reasons.



(c. 1890), the messenger of the gods who unites Heaven and Earth, as a headless nude forming, with her open legs, the metaphoric rainbow with reference to which poets have always described nature's beauty (illus. 272).⁷³ Sexual organs once again form the sculpture's centre. The similarity with *Etant donnés* is accentuated by the general posture (even more similar in the rough sketches for the nude), the naturalistic symbolism and the importance of the sole of the foot, where we see the artist's proud signature. We have already said that this part of the body was consciously hidden by Duchamp (who re-created it again in *Torture-morte* [illus. 226]), thus succeeding in making the observer focus on sexual organs. Consequently, the signature moved to another invisible place: the stump where the right arm should be . . .

These are not the only examples of nineteenth-century highbrow art in which we find that the female sex organs are prominently displayed. It is less important to examine all of these hypothetical precedents than it is to remember that, for Duchamp, the images from popular pornography were more important; among them lay a huge volume of visual and composite images that no artist without prejudice and with a sense of humour could fail to appreciate. The high point of this genre is the 'beaver-shot', the view of the woman with her legs spread wide, revealing her genitalia. This genre tends to be classified as 'pink' (i.e., pornographic); it does not seem inappropriate to associate this epithet with Rose Sélvay.⁷⁴ An infinite number of drawings, photographs and stereoscopic views fall into this category. Duchamp must have seen many examples similar to those reproduced here (illus. 273, 274). Mixed together, and with precedents from outside the world of highbrow art (such as those we have already examined) conveniently



digested, they would have been re-created in *Etant donnés* in the form of such an original and inimitable model that the observer could not separate the strong vulgar allusion from the ineffable, poetically captivating enchantment.

Between all these sources and Duchamp's work is the sieve of the avant-garde, which was also not averse to depicting female genitalia. In the magazine 391, Picabia published a photograph of his picture *Vagin brillant*,⁷⁵ a mechanico-sexual metaphor of the type which flourished in the heyday of Dadaism. Man Ray similarly concentrated attention in his photograph *Naked Woman and a Spider's Web* (illus. 275). The pubis is the centre, the primordial focal point of the lens. Let us return to what Lyotard said about *Etant donnés*:

In an organization of this type, the viewing point and vanishing point are symmetrical: if it is true that the latter is the vulva, then the vulva is the specular image of the voyeur-eyes; or: when these eyes think they see the vulva, they are seeing themselves. A cunt is he who sees.⁷⁶

I believe that we can corroborate this shrewd intuition with iconographic testimony from the world of the Surrealists: a work by Victor Brauner, reproduced in *Minotaure*, showed an eye situated in a woman's pubic area (illus. 276).⁷⁷

. . . SHAVEN

It has, incidentally, neither eyelashes nor eyebrows, and this is something which strikes us as peculiar in *Etant donnés*: the pubic hair has been shaved. Or it could be that it is only in part 'celle qui a de l'haleine [de la

273, 274. A lithograph from the beginning of the century showing *Memoires d'une chanteuse*, and an erotic stereograph by M. X (1924-30?).

275. *Naked Woman and a Spider's Web* by Man Ray, with the sexual organs as the centre of the image.



276. Female sexual organs and an eye in a drawing by Victor Brauner, reproduced in *Minotaure*, nos 12–13 (1939).



lain] en dessous'.⁷⁸ There is also a connection, in a different sense, as we have seen, with *Torture-morte* (which seems a clear echo of 'tonsure')⁷⁹ and with *Fountain*, which, given the whiteness of its porcelain, is the smoothest of all the cunts thought up by Duchamp.

This subject matter enjoyed a certain artistic importance during the glorious epoch of Dadaism: at the end of 1917, the Parisian police closed a Modigliani exhibition because several of his pictures showed unshaven nudes. The resulting scandal contributed to the theme becoming fashionable. We know that the famous model Kiki de Montparnasse seemed very suitable to Man Ray because, according to him, she had very little pubic hair, and this facilitated things with the censors (illus. 277).⁸⁰ Could it be that *L.H.O.O.Q.* (illus. 32) was another subtle joke against the morality regulations? Will she have a hot bum (if it is 'she' and not 'he') as a result of being shaven 'down below', or from the shameless transfer of the hidden hair to her face?

Some of the New York Dadaists' experiments with the cinema and stage were also very interesting. Man Ray tells us that in 1920, he took in a young Puerto Rican woman who was separated from her husband, and for some time shared her friendship with Marcel Duchamp. They then



277. A photograph of Kiki de Montparnasse taken by Man Ray c. 1921–22. The photographer was intrigued that this model had so little pubic hair.



278. Duchamp (wearing a beard and with his pubic area shaven) and Bronya Perlmutter in the ballet *Relâche* by Picabia and Satie (1924).

had the idea of filming the girl lying on a sofa in the not particularly clear posture that we see in *Etant donnés*. The idea was that Man Ray should shave her pubic hair while Duchamp operated the camera. But it seems that the scene was not shot as intended since the girl's excitement made shaving impossible.⁸¹ A mistake made during development meant that the film was almost totally destroyed. Echoes of this could be detected in the ballet *Relâche* by Picabia and Satie (1924), in which Duchamp appeared in the role of Adam with a beard but without pubic hair, whereas Eve (the young Russian Bronya Perlmutter), whose pubic area seems not to have been shaven, made René Clair, a part-time electrician on the set, fall in love with her (illus. 278).⁸²

Intimate hair was a matter of even greater obsession for the Surrealists, who spoke about it in their diverse writings and used it in many paintings. Miró is a perfect example. Dalí, with whom Duchamp enjoyed a long friendship, published an important document in 1936 dedicated to 'the hair in soft structures', in which, among other things, he wrote:

In the extremely disturbing spectacle of a woman with a beard, there is reproduced the grandiose and nostalgic mechanism of 'aesthetic deception', which, in our Western philosophy, is called 'the causal relationship'. This is nothing less than a sublime disorientation of biological hair, terrible hair, hallucinatory hair, because everything happens as if the golden plate in which they serve you the highest super-gelatinous hierarchies, the soft and



279, 280. *Feuille de vigne femelle* (1950). This sculpture (or mould) made from galvanized plaster was carefully photographed for the production of a three-dimensional version. The image was used on the cover of *Le Surréalisme, même* (1956).

divine structures of the 'eternal female', you will find not only hair but a genuine truculent beard stuck 'antigeodesicamentally' to all this nutritional delirium and coming from god knows where.⁸³

Are the smooth pudenda of *Etant donnés* another example of the 'dis-orientation of biological hair'? Perhaps the pubic hair has been transferred to the lover's mouth, as in the armpit shot in *Un chien andalou*.

Be that as it may, it is fitting to recall that a painstaking shave is indispensable when one is attempting to take moulds of the human body. Duchamp tried it for the first time with *Feuille de vigne femelle*, a sculpture in galvanized gypsum which he made in 1950 by taking a wax or clay impression of a model's groin (illus. 279). The pubic hair did not reappear, logically, when, through photographic processes, the inversion of the female genitalia was obtained in an image used on the 1956 cover of number 1 of *Le Surréalisme, même* (*Surrealism, even*; illus. 280).⁸⁴ I believe that this was the starting-point for the woman's genitalia in *Etant donnés*, whose hyperrealism must also have been based on a model (Alexina?) specially shaven for the occasion. Taking matters further, we can make chronological assumptions about the evolution of certain ideas in the Philadelphia montage: the low angle of observation, provoking an optical and mental immersion of the voyeur into the female genitals, might have been adopted when Duchamp tried to reintegrate his 'leaf from a female vine' with the illusory convexity (c. 1956); then, he had to play about with the framing and the light, discovering, almost by chance, the powerful

impact of the lay-out (see Table 6 for a hypothetical chronology of *Etant donnés*). I believe that it is in this context that the quotation recorded by Steefel in the same year acquires meaning: 'I want to grab things with my mind in the same way as a prick is grabbed by a vagina.'⁸⁵

STAGES AND GLOBAL IDEA	MARCEL DUCHAMP'S TESTIMONIAL WORKS	EFFECT ON THE FINAL LAY-OUT OF ETANT DONNÉS
1944–1950 (?) Woman lying with her legs apart, partially mutilated, with or without a landscape background. (Private business with Maria Martins?)	– Female nude with legs apart (pubic area unshaven) [1944].	First idea for the 'dummy'.
	– Paysage fautif [1946].	Germ of the idea for the woman lying 'in the open air'.
	– Naked female on top of the photograph of a Swiss landscape [1947?].	Adoption of the idea of a woman lying down against a background of a Swiss landscape with a waterfall which, at this stage, is perhaps stationary.
	– Nude in bas-relief covered with skin and velvet [1948–49].	Made up either as a sculpture or an installation (not 'a painting').
	– Le Rayon vert [1947].	Peep-hole for looking at a 'landscape': stage lay-out with a love theme.
1950–1968 (?) Increasingly theatrical, voyeuristic, posthumous lay-out of the installation. Production of a parallel work (paradoxical booklet) with the <i>Instruction Manual</i> . (Private business with Alexina.)	– Feuille de vigne femelle [1950].	The idea of a woman's 'shaven' pubic area now fixed.
	– Cover of <i>Le Surréalisme, même</i> [1956].	Low angle of observation of the woman's pubic area and control of the lights.
	– (Discovery of the door on the outskirts of Cadequés) [1958 (?)].	Closed door and peep-holes for the voyeur.
	– With my tongue . . . , Torture-morte and Sculpture-morte [1959].	Work with the sculpture dummy using, in part, natural castings.
	– Photo of Alexina and Marcel in front of a waterfall [1960–64 (?)].	Adoption of the idea of the moving waterfall and the construction of an engine.
	– <i>Instruction Manual</i> [1966–68].	Accentuation of the 'sacrificial' metaphors and of the posthumous dimension: love imposing its will on death . . .

Table 6: Hypothetical chronology for *Etant donnés* (1944–68).

The interesting thing about all this is that Duchamp accepted the morality regulations concerning the shaven pubis (still censored in several countries), but when putting the female figure in *that* position, and in such a place, opposite the voyeur, he increased the erotic impact. An ordinary nude with pubic hair would not have made the same impression. This *super-pink* (i.e., pornographic) figure is a hyperbole of the rules governing pornography; its untransferable poetic quality is confirmed by its situation 'far beyond' those secular traditions, both highbrow and vulgar, which had petrified the conventional scene (half-heartedly erotic) of the nude facing the observer, with or without a landscape.

LOVE, THE SIGNATURE AND POSTERITY

It may seem pointless at this stage, and after all that has been said, to ask ourselves about the final meaning of *Etant donnés*. 'There is no solution because there is no problem,' its creator would have said to us. Rather than concluding, then, we shall continue the discourse with other considerations which, perhaps by chance, are coming to an end. There are still things which can be said about the hyperrealism of this work. I do not believe that it contains a rejection of the principles of 'precision painting' applied in the *Large Glass*; rather, it continues them by other means. We already know that it is a rigorously optical montage: the foreshortened/deformed figure and the irregular spaces are reconstructed as a complete, illusory reality (a stage) by the voyeur's retina and mind. But the work is composed, in reality, of fragmentary pieces which can be dismantled, as if it were an engine. Its naturalism is also, as we have seen, connected with photography, stereoscopy and the cinema, all mechanical means of restoring reality with maximum objectivity (it is filtered through *the clarity of the lens*). Did Duchamp want to overcome these procedures? Let us see how he answered Stieglitz in 1922 when the latter sounded him out: 'You know exactly what my feelings are with respect to photography. I should like to see it make people despise painting until something new comes along to make photography unbearable.'⁸⁶ Finally, a montage like *Etant donnés*, so subtle and complex, makes simple snapshots appear to be child's play. Is it not perhaps the 'something new' which will make them 'unbearable'?

We have spoken about how Duchamp arranged for the individual voyeur to be converted into a 'sensitive' plate which would register reality which could only be, logically speaking, four-dimensional. We also said that his preoccupation with overcoming the real flatness of a painting (or



281, 282. The female nude in natural surroundings: such was the primordial material seen in the stereoscopic work of Jean-Camille Duprat (1928–30?). There is an obvious similarity between some of these images and Duchamp's dummy in the open air.

of the cinema or photography) led him to an interest in stereoscopy and anaglyphs. Thus far, I have postponed mention of a strange creator of stereoscopic photographs of nudes who worked at the end of the '20s, situating his female models in rugged landscapes. One might say that there is an obvious relationship here with *Etant donnés* (illus. 281, 282). The photographer's name was Jean-Camille Duprat. I suppose that it is pure chance that the name Duprat (*du prat*) is reminiscent of the Catalan and Old French *du champ*, but there is no doubt that Duchamp was fully aware of the association between his own name and the countryside. Thus, his answer to Cabanne regarding the nature of the most poetic term was that he did not know what it was, but that in any case '... they are words deformed by meaning'; he agreed when his interlocutor stated that '... the name "Duchamp" is very poetic', at the same time apparently lamenting the fact that his brother Jacques Villon did not understand this. 'There are epochs,' he concluded, 'when names lose their charm.'⁸⁷

This conversation took place in 1966, the year in which Duchamp finished *Etant donnés*. Is his signature in this work really hidden from the voyeur's gaze? What does the latter see through the peep-holes, and what does he feel? There is a hole in the brick wall through which the shining promise of love in the open air can be seen (illus. 210): Rose Sélavy/Duchamp, 'eros, c'est la vie du champ.' We could also add here the artist's first name, decoding its Provençal or Catalan meaning (after all, he did spend his summers in Cadaqués: Mar Cel = sea and sky). The phrase increases rather than loses meaning.⁸⁸ *Etant donnés* is a signature-work, a

testament-epigraph. This 'résumé' of all of Duchamp's thoughts and activities was intended for posterity 'because the contemporary observer is of no value whatever'.⁸⁹ And this necessary mediation of death ✓ between work and voyeur is not insignificant; as (according to Duchamp's constant assertions) '... it is the voyeurs who make pictures,⁹⁰ the artist would have envisaged indefinite resuscitation by the 'creative process' of every observer. It seems logical to assume that this is a question of sexual invitation. That makes it even clearer why 'it is other people who die ...'

INSTANT REPOSE AND AN INVITATION TO THE 'CREATIVE ACT'

Now that we have recognized the signature, let us return to the beginning and have a look at the title. Duchamp placed on the dummy's right stump (hidden from view), and in the *Manual*, the first words of his note/preface for the *Green Box*, whose contents are repeated with slight variations on its obverse and reverse. I offer the following parallel translations of both versions, minus a few unnecessary parts and fragments (particularly on side 2) which do not seem relevant to this work:

1	2
<p><i>Preface</i> Given: 1. the waterfall 2. the gas for lighting</p> <p>we shall determine the conditions of instantaneous repose (or allegorical appearance) of a succession [of a montage] of different facts which may appear to need each other through laws, in order to isolate the sign of the concordance between on the one hand, that repose (capable of all the countless eccentricities) and, on the other, an election of possibilities made legitimate by those laws and also being the cause of them.</p>	<p><i>Announcement</i> Given in the darkness 1. the waterfall 2. the gas for lighting</p> <p>the conditions of the extra-rapid exhibition (= allegorical appearance [reproduction]) will be determined from the various collisions [attacks] which seem to occur according to rigorous laws; this will be done in order to isolate, on the one hand, the sign of concordance between the extra-rapid exhibition (capable of all eccentricities), and on the other, the election of the possibilities made legitimate by these laws.</p>

In less cryptic language, and bearing in mind the subject matter of the montage, we can paraphrase both versions in more or less the following manner: given the presence of a waterfall (symbolic image and driving force) and a gaslight, we can determine the visual apparition, as in a snapshot, of an allegory of love; the quietness of the scene would be no more than a moment's repose in the collection of processes (collisions, various deeds) determined by the random laws of love (capable of all eccentricities).

If this is right, many interpretations are possible, but they must all take account of the inescapable fact that what is seen is a frozen instant of an 'action', a scene whose continuity is the responsibility of the observer. It may be that a crime is about to be committed or that the crazed assassin has already committed it in a desperate moment of love. Perhaps it is a matter of rape,⁹¹ an ambiguous crime alluded to by 'smashing through' the brick wall (was the hole made by the predatory male with his 'battering ram?'); perhaps the woman has already surrendered to her lover⁹² and, satisfied, lights the way for the man's withdrawal with her lamp. But we might also be inclined to accept (and this might appear more probable) that the voyeur can make out, in a snapshot, through the peep-holes (and now we have real eye-witnesses), the object of his desire; this will provoke ✓ 'a succession of different deeds, all of which seem to need each other', and which organize themselves into laws with two possibilities: either a masturbatory urge is created, similar to the solipsistic machine in the *Large Glass*, or the door is forced and one enters into the realm of the bride, as we saw happen with the *conjunctive apparatus*. This, I think, is a decision which the voyeur must make. His participation in the work (and the only reasonable way to walk through life) implies witnessing a crime of passion, or rather, devoting himself totally to the workings of love.

Appendix

Early Duchamp in 9 Representative Works



Henri Robert Marcel Duchamp was born on 28 July 1887 in Blainville-Crevon, a small village 18 kilometres from Rouen. He came from a fairly well-off bourgeois family from Normandy (his father was a solicitor) whose love of the arts meant that the two older brothers, Gaston (Jacques Villon; 1875–1963) and Raymond (R. Duchamp-Villon; 1876–1918), and their sister, Suzanne Duchamp (1889–1963), ultimately all chose to pursue artistic careers. Marcel studied for a bachelor's degree in philosophy and literature; by the time he had completed the course in 1904, his two older brothers had already abandoned their studies in law and medicine respectively, in order to dedicate themselves to painting and sculpture.

It is not surprising that Marcel went to Paris and stayed with his elder brother in Montmartre while attending classes in drawing and painting at the famous Académie Julian. At that time, the French capital attracted vast numbers of artists of all schools. The progressives tended to form more or less organized groups and get involved in interminable debates concerning theory. This, together with the uncommon speed with which artistic movements succeeded one another, explains two important things about the attitude which Duchamp eventually adopted: his contempt for stylistic purity, and the great value he placed on the intellectual dimension in art. Between 1902 (the year of his first significant works) and 1911, he assimilated all of the innovations in drawing that were currently in vogue. In the work he produced during those years, we see, in effect, the echoes of late Impressionism, Symbolism, Fauvism, Cubism and Futurism. One might say that, plagued by a singular intelligence, he quickly grasped and absorbed everything that modern art had been able



283. *Landscape in Blainville*
(1902; Collection Schwarz,
Milan), or the adolescent
Duchamp's assimilation of
Impressionism.

to offer thus far. These were years, then, when apprenticeship triumphed over invention. Despite the undoubted interest of these works (particularly those from about 1910–11), I believe that Duchamp would have figured in the history of art as nothing more than an interesting, second-class Cubist if he had died after painting *Nude Descending a Staircase*. A review of some of these works can help us to understand his evolution, and to detect how some of his youthful obsessions were transmuted later on into mature activity which moved in a very different direction.

The small oil painting (61 by 50 centimetres) entitled *Landscape at Blainville* (1902; illus. 283) was produced using orthodox Impressionist techniques: short, nervous brush strokes make us feel that it was painted quickly, in the open air, with the intention of conveying a fleeting atmospheric sensation. The picture lacks a literary or philosophical argument, as well as any moral content: one can be 'as stupid as a painter'¹ and communicate the imprint of a landscape on a retina perfectly. The Impressionists seemed to identify the artist with the lens of a camera: both were neutral beings, without feeling, and as such lacked intellectual depth and a sense of humour. Later on, Duchamp rejected aspects of these ideas (retinal pleasure, intellectual poverty), maintaining an anti-romantic distance from them. Meanwhile, landscapes with aquatic elements feature repeatedly in his mature work, from *Pharmacie* (1914; illus. 225) or *Moonlight on the Bay at Basswood* (1953; illus. 257) to the background in *Etant donnés* (illus. 210).

284. *Nude in Black Stockings* (1910; Collection W. N. Copley, New York), a 'Fauvist' work showing the influence of Van Dongen and something of Rouault.



285. *Portrait of Dr Dumouchel* (1910; Philadelphia Museum of Art): the aura around the hand has more in common with radiology than with esoteric literature.



Very different is *Nude in Black Stockings* (1910; illus. 284): not only the drawing technique has changed completely, but so has the artist's attitude to the subject matter. If we compare this with the first example, we notice that nervous brush strokes have given way to thick blobs of colour in daring juxtapositions. The body (and what looks like wallpaper in the background) is made up of off-white, mauve and greenish masses, an indication that Duchamp had assimilated the lessons of Fauvism completely. A certain softness in the outlines, almost making one think of cotton, puts us more in mind of van Dongen than of Matisse, Derain or Vlaminck. However, the model's posture, the little upholstered stool on which she is sitting, and the black stockings do not bring to mind the neutral world of the academies, but rather a snapshot taken in a brothel. Considered together with the thick, dark outline with which the figure is drawn, this also suggests a muted echo of Rouault. And we must not overlook the frame: by cutting off part of her head and her right foot, Duchamp has brought this nude close to the eye (conscience) of the viewer; we have already seen the importance of this device in *Etant donnés*. The 'sex point' is more or less the centre of this youthful oil painting.

The Portrait of Dr Dumouchel (1910; illus. 285) is very similar, from a stylistic point of view, although here the Fauvist technique has been placed at the service of a mysterious atmosphere connected with the Symbolist universe: the sitter's left hand is surrounded by a mauve halo, which has been explained by reference to the possible influence of

the esoteric book by Annie Besant and Charles W. Leadbetter, *Les formes-pensées* (1905). According to these authors, auras (or corporal radiation) manifest themselves in different colours, and this is what Duchamp had in mind when he painted his friend.² We must also remember, however, the fascination which X-rays had for the young Marcel, and we should not forget that the sitter, a former classmate at the Lycée Corneille and friend of one of his brothers, had a good knowledge of radiology. The portrait shows, in any case, the artist's wish to move away from 'the visible'. As he wrote many years later:

The 'halo' around the hand, which is not expressly inspired by Dumouchel's hand, indicates my subconscious anxieties concerning progress towards a meta-Realism. It has no precise significance nor explanation, other than the satisfaction of a need for 'the miraculous' which preceded the Cubist period.³

Duchamp, then, quickly passed through a 'symbolist moment', plagued by literary evocations and romantic bad habits. *Paradise* (1910–11; illus. 286) is fine testimony to this: a young male nude in the foreground appears to be staring into infinity (the model once again was his friend Dumouchel); behind him squats a naked woman. Both are seen against a landscape background, and there is a predominance of curved forms, as in the works of the Nabis. There is an Oriental influence here; additional testimony to Duchamp's brief fascination with things Japanese can be seen in the way he made use of the professional model known as 'La Japonaise' (as well as painting pictures such as *Current of Air over the Apple Tree from Japan* [1911]). We experience feelings of unease: the man hides his genitals as if ashamed. Rather than illustrating harmony between the sexes or between them and nature, this picture seems to evoke the difficulties of love; it is set not in the age of innocence, but following the Fall. Something of this feeling was to be transferred later into the mechanical/comic farce of the *Large Glass*. His brief Symbolist period must soon have become a source of irritation for Duchamp; the contempt he was to feel for the works which he produced during this phase is indicated by his use, only a few months later, of the back of this canvas to paint *The King and Queen Surrounded by Swift Nudes* (1912; illus. 292).⁴ We should also note that the masculine figure in *Paradise* possesses great formal simplicity: here, Duchamp was approaching the 'abstraction' of Cubism, but before he arrived at it he would have to pass through a stage of creating strapping, almost monumental figures, such as the ones seen in *Red Nude* (1910), *The Bush* (1910–11) and so on.

Almost all interpretations of Duchamp as an initiate or expert in



286. Duchamp also went through a brief Symbolist period, as is seen in *Paradise* (1910–11; Philadelphia Museum of Art).

287. It seems that Duchamp used several symbols from alchemy when he painted *Spring* (1911; Mary Sisler Collection, New York).



alchemy rest on the imagery in *Spring* (also known as *Boy and Girl in Spring* [1911; illus. 287]). This canvas, apparently unfinished, was a present from Marcel to his sister Suzanne on the occasion of her first marriage and has the following inscription on the back: ‘A toi ma chère Suzanne Marcel’. In this work, Arturo Schwartz saw the tree from which Adam ate the apple, the glass sphere and the brother and sister who represent alchemical incest, the union of opposites whose fruit is the original androgyne.⁵ Ulf Linde and Golding, among others, discussed such interpretations in great detail.⁶ These theses seem to contradict Duchamp’s famous statement to Lebel: ‘If I have practised alchemy, I have done so in the only way that it can be practised today, that is to say, without knowing it [sans le savoir].’ This statement coincides with the testimony of his closest relatives who insisted that the artist meant exactly what he said, not that he lacked the knowledge of the great ‘initiates’.⁷ It seems most logical to suppose that Duchamp, in his brief Symbolist period, flicked through some books on alchemy and the esoteric (it was ‘in the air’) and that some elements found their way into this picture. This does not mean that the artist intended to show everything which can result from a serious study of alchemical texts, since his knowledge of the subject must have been quite superficial. These vague flirtations with esoteric subjects must have been consciously suppressed when he emerged from his Symbolist phase, so that if there is anything alchemical in his later works (particularly the *Large Glass*), it must have occurred without the artist’s knowing it. From



the technical point of view, *Spring*, with its geometric figures, is a much more 'abstract' picture than all those which preceded it; Duchamp must already have been interested in speculations concerning n-dimensional space, and this must have prepared the way for his immediate acceptance of the language of Cubism.

Portrait (known also as *Dulcinea*), painted in October 1911 (illus. 288), shows a complete stylistic transformation: strident colours have given way to a subdued range of ochres and greenish greys, as in the most typical works of Analytical Cubism. The tones are distributed over planes with clearly defined contours, so that the viewer has the sensation of looking at a picture whose underlying design is constituted by a geometrical cross-wire which expands upwards from a vertex to two extremes. Like an fan being opened, the same figure is repeated five times, in different postures; its progressive 'undressing', then, must be considered as a metaphor for the transparency of bodies when projected into four-dimensional space. This brand of Cubism, unlike that of Picasso and Braque, was contaminated with mathematical speculations and



288. The first 'undressing' appeared in *Dulcinea* (1911; Philadelphia Museum of Art). The figure is repeated five times like the spines of a fan as it opens.

289. *Coffee Mill* (1911; Tate Gallery, London) already shows diagrammatic elements inspired by technical design.

complicated theories concerning the universe, matter and the new function which art had to adopt in a world which could not be represented properly by the simple premises of Euclidean geometry. The movement represented here has little to do with that of the Italian Futurists: while they tried to exalt the dynamism of modern life (machines and the changes they bring about in human beings), Duchamp's work seems to illustrate a progressive activity of the mind as it gradually comes to terms with the complex reality of an object which is being progressively dematerialized. Which is not to say that a subtle sense of humour is not present, as if he were making fun of the solemn seriousness with which the Puteaux Cubists, friends of his brothers, took their own theories.

At the end of 1911, Duchamp painted a small (33 by 12.5 centimetres) canvas on cardboard backing depicting a coffee mill (illus. 289). He was asked to do this by his brother Raymond, who wanted to decorate his kitchen and approached some of his friends to make contributions. This was a fine opportunity for Marcel, who saw his work for the first time placed alongside those of the group of artists which included such notable figures as Gleizes, Metzinger, de la Fresnaye and Léger. The diagrammatic aspect of the work is very interesting, with the arrow suggesting the movement of the sleeve and a perfect circle instead of the oval shape it would acquire in perspective. It is not a traditional picture, but neither can it be termed Cubist: the juxtaposition of planes and lines reminds us, on the other hand, of the diagrams in specialist catalogues and mechanics' manuals. Unconsciously and following his own path, Duchamp was approaching Futurism and laying the foundations for the poetics of the *Large Glass*. I doubt whether his collaborators on the kitchen decorations liked this work, although on that occasion they had to excuse the inexperienced 'apprentice', on account of the picture's small and private nature.

A row broke out, however, when he presented the second version of *Nude Descending a Staircase* (completed between December 1911 and January 1912) to the Salon des Indépendents in February 1912 (illus. 290, 291). Gleizes and the other orthodox Cubists, using his older brothers as emissaries, let Marcel know of their displeasure at his painting, so he withdrew it from the exhibition. It was a fruitful disappointment, as Duchamp decided from that point on not to have anything to do with groups or schools of artists, but to follow a solitary, personal road. There is more than ample evidence that the *Nude* was inspired by Marey's chronophotography and the deconstruction of movement achieved by Eadweard Muybridge (illus. 291); it is also probable



290, 291. *Nude Descending a Staircase No. 2* (1912; Philadelphia Museum of Art) became the mythical emblem of twentieth-century art after its amazing success at the 1913 Armory Show in New York. Its sources include a series of photographs like these by Muybridge showing the stages of movement as a woman walks down stairs.



that Duchamp's viewing of a few Futurist pictures at the Bernheim Gallery a short time before he began his work acted as a spur. In addition, I believe that he must have been thinking of the descent shown in the celebrated picture *The Golden Staircase* by Edward Burne Jones (Tate Gallery, London).⁸ *Nude Descending a Staircase* was initially intended as an illustration for Laforgue's poem 'Encore à cet astre', in which allusion is made to the gradual loss of solar energy,⁹ but its literary character was almost completely lost in the final version, and it acquired instead the parodic tone which its detractors among the Indépendents saw and Duchamp never contradicted. What we have here is a dynamic-Cubist picture whose conquest of 'retinal' art is much more radical than that apparent in *Dulcinea*. If the joke concerning the ideas bandied about inside the Puteaux group was deliberate (and I think this is highly probable), it would have been more cruel than it might seem, given the technical perfection of the work and its capacity for making an unforgettable impact on the viewer. It enjoyed an unbelievable success in the Armory Show in New York (1913), and this is how the *Nude* began its prodigious mythical adventure, which was

292. Léger's 'Tubism' influenced Duchamp to a certain extent when he painted *The King and Queen Surrounded by Swift Nudes* (1912; Philadelphia Museum of Art).



eventually to make it one of the essential symbols of the avant-garde.

The King and Queen Surrounded by Swift Nudes (May 1912; illus. 292) was the last painting produced by Duchamp before he went off to Munich. It is also the work which marks the culmination of the process of assimilation and syncretization of the different languages of Cubism in which he was heavily involved. The palette is sombre, with a clear predominance of greens and dark ochres. There is an obvious connection with the Léger of *Nudes in the Wood* (1911), as well as a continuation of Duchamp's own investigations into the physical representation of movement and transparency of forms. The king and queen are the essential pieces on the chessboard: the fact that they are separated (and/or united) by the 'nudes' adds an undoubted erotic connotation to the work. Its structure coincides with that of the drawing *La Mariée mise à nu par les célibataires* (Munich, July–August 1912; illus. 1), which is thought to be the first study for the *Large Glass*: in this case, the king and queen would have been replaced by the two bachelors, and the bride would have taken the place of the 'swift nudes' in the centre of the painting.

At last, the intellectual scene was set for an extraordinary climax. Once he had explored all of the expressive possibilities of orthodox Cubism, Duchamp must have felt as though he were presiding over the death-throes of painting itself. I would go so far as to say that he had exhausted the possibilities of this thousand-year-old art form at the same rapid pace as his nudes – that is to say, vertiginously.

Select Bibliography (69 Books)

A. WRITINGS AND STATEMENTS BY MARCEL DUCHAMP

- The Bride Stripped Bare by Her Bachelors, Even: A Typographic Version* by Richard Hamilton of Marcel Duchamp's Green Box (New York, 1960)
- Cabanne, Pierre, *Entretiens avec Marcel Duchamp* (Paris, 1967) (abbr.: *Entretiens . . .*)
- Duchamp, M., and Vitaly Halberstadt, *L'Opposition et les cases conjuguées sont réconciliées* (Paris, 1932)
- Duchamp du signe: Ecrits*, ed. Michel Sanouillet and Elmer Peterson (Paris, 1975) (abbr.: *D.D.S.*); Spanish edn: *Escritos: Duchamp du Signe*, trans. Josep Elias and Carlota Hesse (Barcelona, 1978) (abbr.: *M.D. Escritos*)
- Lettres à, Letters to, Briefe an Marcel Jean de, from von Marcel Duchamp* (Munich, 1987)
- Manual of Instructions for Etant donnés: 1. La Chutte d'eau 2. Le Gaz d'éclairage* (Philadelphia, 1987)
- Marcel Duchamp, Notes*, ed. Paul Matisse (Paris, 1980); American edn: preface by Anne d'Harnoncourt (Boston, 1983); Spanish edn: trans. María Dolores Díaz Vaillagou, preface by Gloria Moure (Madrid, 1989) (abbr.: *M.D.N.*)
- Marcel Duchamp: Notes and Projects for the Large Glass*, selected, arranged and introduced by Arturo Schwarz, trans. George H. Hamilton, Cleve Gray and A. Schwarz (London, 1969) (abbr.: *M.D.N.P.L. G.*)

B. WORKS ON MARCEL DUCHAMP

- Adcock, Craig E., *Marcel Duchamp's Notes from the Large Glass: An N-dimensional Analysis* (Ann Arbor, MI, 1983) (abbr.: *M.D. Notes . . .*)
- Baruchello, Gianfranco, and Henry Marton, *Why Duchamp: An Essay on Aesthetic Impact* (New York, 1985)
- Bonk, Ecke, *Marcel Duchamp, the Box in a Valise: De ou par Marcel Duchamp ou Rose Sélavy: An Inventory of an Edition* (New York, 1989) (abbr.: *M.D. T.B. V.*)

- Cabanne, Pierre, *The Brothers Duchamp: Jacques Villon, Raymond Duchamp-Villon, Marcel Duchamp* (Boston, 1979); original edn: *Les Trois Duchamp: Jacques Villon, Raymond Duchamp-Villon, Marcel Duchamp* (Paris, 1975)
- Calvesi, Maurizio, *Duchamp invisible: La costruzione del simbolo* (Rome, 1975)
- , with other texts by Arcangelo Izo, Filiberto Menna, Achille Bonito Oliva, Tommaso Trini and Arturo Schwarz, *Su Marcel Duchamp* (Naples, 1975)
- Camfield, William A., *Marcel Duchamp Fountain* (Houston, 1989)
- Carrouges, Michel, *Les Machines célibataires* (Paris, 1954)
- Caumont, Jacques, and Jennifer Gough-Cooper, *Plan pour écrire une vie de Marcel Duchamp. 1. Chronologie générale, 2. Les trente premières années* (Paris, 1977)
- Clair, Jean, *Marcel Duchamp ou le grand fictif: Essai de mythanalyse du Grand Verre* (Paris, 1975)
- , *Duchamp et la photographie: Essai d'analyse d'un primat technique sur le développement d'une oeuvre* (Paris, 1977)
- , *Marcel Duchamp: Catalogue raisonné* (Paris, 1977) (abbr.: *M.D.C.R.*)
- , ed., with contributions by P. Hulten, A. Schwarz, J. Chalupceky, U. Linde, O. Micha, F. le Lionnais, J. Clair, J. F. Lyotard, C. F. Reuterswald, R. Lebel, T. de Duve, and G. Raillard, *Marcel Duchamp: Abécédaire, approches critiques* (Paris, 1977) (abbr.: *M.D.A.*)
- , ed., *Marcel Duchamp: Tradition de la rupture ou rupture de la tradition?* (Paris, 1977)
- Clearwater, Bonnie, ed., with contributions by B. Clearwater, F. M. Naumann, N. Sawelson-Gorse, D. Tashjian, W. Hopps and R. L. Pincus, *West Coast Duchamp* (Miami Beach, 1991)
- D'Harnoncourt, Anne, and Walter Hopps, *Etant donnés, 1. La Chute d'eau 2. Le Gaz d'éclairage: Reflections on a New Work by Marcel Duchamp* (Philadelphia, 1987) (reprint of a 1973 article)
- D'Harnoncourt, Anne, and Kynaston McShine, eds, *Marcel Duchamp* (Philadelphia and New York, 1973) (abbr.: *M.D. [PMA & MOMA]*)
- Dorstel, Wilfried, *Augenpunkt, Lichtquelle und Scheidewand: Die symbolische Form im Werk Marcel Duchamps: Unter besonderer Berücksichtigung der Witzzeichnungen von 1907 bis 1910 und der Radierungen von 1967/68* (Cologne, 1989)
- Dreier, Katherine, and Matta Echaurren, *Duchamp's Glass: La Mariée mise à nu par ses célibataires, même: An Analytical Reflection* (New York, 1944)
- Duve, Thierry de, *Résonances du ready-made: Duchamp entre avant-garde et tradition* (Nîmes, 1989)
- , *Nominalisme pictural: Marcel Duchamp, la peinture et la modernité* (Paris, 1984); English edn: *Pictorial Nominalism: On Marcel Duchamp's Passage from Painting to the Ready-made* (Minneapolis, 1991)
- , ed., with contributions by D. Young, T. de Duve, E. Cameron, F. M. Naumann, J. Suquet, W. Camfield, H. Molderings, C. P. James, C. Adcock,

- M. Nesbit, A. Gervais and R. Krauss, *The Definitively Unfinished Marcel Duchamp* (Cambridge, MA, 1991) (abbr.: T.D.U.M.D.)
- Gervais, André, *La Raie alitée d'effets: A propos de Marcel Duchamp* (Québec, 1984)
- Gibson, Michael, *Duchamp dada* (Paris, 1991)
- Golding, John, *Marcel Duchamp; The Bride Stripped Bare by Her Bachelors, Even* (New York, 1973)
- Gough-Cooper, Jennifer, and Jacques Caumont, *Plan pour écrire une vie de Marcel Duchamp* (Paris, 1977)
- Hamilton, Richard, *Not Seen and/or Less Seen of/by Marcel Duchamp/Rose Sélavy, 1904–64: Mary Sisley Collection Exhibition* (New York, 1964)
- , *The Almost Complete Works of Marcel Duchamp* (London, 1966)
- , *The Bride Stripped Bare by Her Bachelors, Even, Again: A Reconstruction by Richard Hamilton of Marcel Duchamp's Large Glass* (Newcastle-upon-Tyne, 1966)
- Henderson, Linda Dalrymple, *The Fourth Dimension and Non-Euclidian Geometry in Modern Art* (Princeton, 1983)
- Hopps, Walter, with Ulf Linde and Arturo Schwarz, *Marcel Duchamp: Ready-mades, etc. (1913–1964)* (Milan, 1964)
- Jean, Marcel, *The History of Surrealist Painting* (New York, 1960); original French edn (Paris, 1959)
- Kotte, Wouter, *Marcel Duchamp als Zeitmaschine: Marcel Duchamp als tijdmaschine* (Cologne, 1987)
- Kuenzli, Rudolf, and Francis M. Naumann, eds, with contributions by R. E. Kuenzli, B. Wood, A. Schwarz, F. M. Naumann, T. de Duve, W. A. Camfield, P. Read, C. P. James, G. H. Bauer, C. Adcock, H. Wohl, D. Judovitz and T. Shipel, *Marcel Duchamp: Artist of the Century* (Cambridge, MA, 1989), originally published as *Dada/Surrealism*, no. 16 (1987) (abbr.: M.D.A.C.)
- Lebel, Robert, *Sur Marcel Duchamp*, with texts by A. Breton and H.-P. Roché (Paris, 1959); American edn: *Marcel Duchamp* (New York, 1959); reprinted as *Marcel Duchamp* (Paris, 1985)
- Linde, Ulf, *Marcel Duchamp* (Stockholm, 1986)
- Lyotard, Jean François, *Les Transformateurs Duchamp* (Paris, 1977); American edn: *Duchamp TRANS/formers* (Venice, CA, 1990)
- Marquis, Alice Goldfarb, *Marcel Duchamp, eros c'est la vie: A Biography* (Troy, NY, 1981)
- Mashek, Joseph, ed., with contributions by J. Mashek, G. Apollinaire, L. Kochnitzky, H. and S. Janis, W. Rubin, W. Hofmann, J. Cage, L. Norton, G. H. Hamilton, G. Charbonnier, O. Paz, L. D. Steefel, K. S. Dreier and Matta Echaurren, J. Johns, W. Copley, T. B. Hess, D. Judd, C. Greenberg, M. Roth, M. Kozloff, H. Richter, M. and W. Roth and R. Pincus-Witten, *Marcel Duchamp in Perspective* (Englewood Cliffs, NJ, 1975)
- Molderings, Herbert, *Marcel Duchamp: Parawissenschaft, das Ephemere und der Skeptizismus* (Frankfurt, 1983)

- Moure, Gloria, *Marcel Duchamp* (Barcelona, 1988)
- , ed., with contributions by G. Moure, M. Duchamp, E. Serra, I. Sola-Morales, J. Cage, A. d'Harnoncourt, D. Ades, Y. Tono, O. Paz, M. Calvesi and G. Celant, *Duchamp: Exhibition Organised by the State Pension Department and the Joan Miró Foundation* (Madrid, 1984)
- Oliva, Achille Bonito, *La delicata scachiera: Marcel Duchamp 1902–1968* (Florence, 1973)
- , *Vita di Marcel Duchamp* (Rome, 1976)
- Partouche, Marc, *Marcel Duchamp: J'ai eu une vie absolument merveilleuse: Biographie 1887–1968* (Paris, 1991)
- Paz, Octavio, *Marcel Duchamp* (Mexico City, 1968)
- , *Apariencia desnuda: La Obra de Marcel Duchamp* (Mexico City, 1973; Madrid 1989); American edn: *Marcel Duchamp, Appearance Stripped Bare* (New York, 1978)
- Roché, Henri-Pierre, *Victor (Marcel Duchamp): Novel*, text by Danielle Regnier-Bohler, preface and notes by Jean Clair (Paris, 1977)
- Samaltanos, Katia, *Apollinaire, Catalyst for Primitivism, Picabia and Duchamp* (Ann Arbor, MI, 1984)
- Schwarz, Arturo, *Marcel Duchamp* (Milan, 1968 [Italian text]); (Paris, 1969 [French text])
- , *The Complete Works of Marcel Duchamp* (New York, 1970) (abbr.: T.C.W.M.C.); French trans. of the introductory text with minor changes: *La Mariée mise à nu chez Marcel Duchamp, même* (Paris, 1974)
- , *Marcel Duchamp: 66 Creative Years: From the First Paintings to the Last Drawings* (Milan, 1972)
- , *Marcel Duchamp, la sposa . . . e i readymade* (Milan, 1988)
- Steeffel, Lawrence D., *The Position of Duchamp's Glass in the Development of his Art* (New York, 1977)
- Suquet, Jean, *Miroir de la mariée* (Paris, 1974)
- , *Le Guéridon et la virgule* (Paris, 1976)
- , *Le Grand Verre rêvé* (Aubier, 1991)
- Tomkins, Calvin, *The Bride and the Bachelors: Five Masters of the Avant-Garde: Duchamp, Tinguely, Cage, Rauschenberg, Cunningham* (New York, 1962)
- , *The World of Marcel Duchamp* (New York, 1966)
- Zaunschirm, Thomas, *Marcel Duchamps unbekanntes Meisterwerk* (Klagenfurt, 1986)
- , *Bereites Maedchen ready-made* (Klagenfurt, 1987)

References

ALSO

1. This description is taken from the first page of his military record book, which was found among the papers deposited by Alexina Duchamp in the archives of the Philadelphia Museum of Art (13-1972-11, folder 12). In the same place, there is an old photograph of such a document showing Duchamp's interest in the 'precision' portrait made by the army bureaucracy.
2. 'A petition', he said to Pierre Cabanne, 'is a form of necessity, the consequence of a necessity. This does not exist for me because, at heart, I feel fine without having produced anything for a long time' (*Entretiens* . . . , p. 152).
3. In a letter to Yvonne Lyon written at 11, rue Larrey and dated 8 or 9 December 1946, Duchamp thanked her for sending him some books, saying about one of them: 'This could be the first Lautréamont which I had round about 1912. I should like to keep it as one of the 5 or 6 books which form my whole library' ('Letters to Yvonne Lyon', Getty Centre for the History of Art and Humanities, Los Angeles, 850691).
4. An anecdote told by John Cage: Before marrying Alexina, Duchamp went to visit her at the house which she owned on Long Island; his future stepson was waiting for him at the station and asked him about his luggage. Duchamp took a toothbrush out of his overcoat pocket and said: 'This is my *dressng gown*.' See M. and W. Roth, 'John Cage on Marcel Duchamp: An Interview', in *Marcel Duchamp in Perspective*, p. 160.
5. When Cabanne asked him if he was afraid that someone would get their claws into him, he replied: 'It's like this. It's the same idea. This [fear] exists with many people. When it's not a literary movement it's a woman; it's the same thing' (*Entretiens* . . . , p. 194).
6. *Entretiens* . . . , p. 116. We know that the young Marcel's parents were very worried by his indifference to professional stability, as can be seen from a letter (15 March 1923) in which his mother told Katherine Dreier: 'I'm telling you that Marcel should not go to Paris, where he will be dragged against his will by friends who are more interested in pleasure than in work' (Archive of the Société Anonyme, Yale University Art Gallery, New Haven, box 13, 'Villon' file, no. 1).
7. Beatrice Wood, *I Shock Myself: The Autobiography of Beatrice Wood*, ed. Lindsay Smith (San Francisco, 1985), p. 22.
8. Henri-Pierre Roché, *Victor (Marcel Duchamp)*. Roman (Paris, 1977), pp. 19, 57.
9. In *M.D. (PMA & MOMA)*, p. 191.
10. Paul Matisse, 'Marcel Duchamp', *Cahiers de Musée National d'Art Moderne*, no. 3 (January-March 1980), p. 16.
11. One of his most famous quotations was to allude to this: 'There is no solution because there is no problem' (collected, among others, in M. Sanouillet, prologue to *M.D. Escritos*, p. 17, and *Entretiens* . . . , p. 13).
12. L. Norton, 'Buddha of the Bathroom', *Blind Man*, no. 2 (May 1917), reprinted in *Marcel Duchamp in Perspective*, p. 71.
13. See 'Une Lettre de Marcel Duchamp', *Medium*, no. 4 (January 1955), p. 33.
14. This obsessive idea of Duchamp's was used in his famous lecture 'The Creative Process' (1957); see *D.D.S.*, pp. 187-9.
15. *M.D. Escritos*, p. 161.
16. See Norton, 'Buddha of the Bathroom', pp. 70-71.
17. Especially in my books *Construcciones ilusorias* (Madrid, 1983, 1987), *Edificios y sueños* (1983; Madrid 1991) and *Dios, arquitecto: J. B. Villalpando y el templo de Salomón* (Madrid, 1991).
18. Letter dated 15 March 1952 in *Lettres à, Letters to, Briefé*

- au Marcel Jean de, from, von Marcel Duchamp (Munich, 1987), p. 42.
19. Interview with Jeanne Segal, 'Some Late Thoughts of Marcel Duchamp', *Arts Magazine*, no. 43 (December–January 1968–69), p. 22.
 20. Quotation from the short story 'Le Surmâle' by Alfred Jarry, generally considered to be one of the literary sources for *Etant donné*s. It was included by André Breton (or by Duchamp) in *First Papers of Surrealism* (New York, 1942; cover by Duchamp).
 21. Man Ray, 'Bilingual Biography', in *M.D.R.*, pp. 207–8.
 22. *Entretiens* . . . , p. 165.
 23. He made this statement (in 1961) when he was speaking of the necessity of humour and danger of seriousness. Quoted in E. Cameron, 'Given', in *T.D.U.M.D.*, p. 14.
 24. H.-P. Roché spoke of Duchamp's liking for women and how he always selected them 'with fantasy and method'. See 'Souvenirs sur Marcel Duchamp', in Robert Lebel, *Sur Marcel Duchamp* (Paris, 1959), p. 85.
 25. Roché, *Victor*, p. 92.
 26. *M.D.N.*, no. 33. He told Carol Janis in 1953: 'My intention was to avoid emotion, to maintain a posture as distant as possible from it' (according to an unpublished interview quoted in J. Clair, *Duchamp et la photographie: Essai analyse d'un primat technique sur le développement d'une oeuvre* [Paris, 1977], p. 68).
 27. The elevated 'transports' of love can be placed on a level with abstract geometrical speculations. At this point, it would seem logical that he introduced those senses usually relegated by artists such as smell and touch; given that the latter is part and parcel of love-making, he said that '... he could make us see or even feel a physical interpretation of the fourth dimension' (letter to Serge Stauffer, 10 May 1961). See M. Duchamp, *Die Schriften*, ed. Serge Stauffer (Zurich, 1981), pp. 251–78; cited in *M.D. Notes* . . . , Note 65, p. 386.
 28. J. A. Ramírez, 'Dalí: lo crudo y lo podrido, el cuerpo desgarrado y la matanza', *La balsa de la Medusa*, no. 12 (1989), pp. 58–111.
1. DEVISING THE READY-MADES
 1. The aircraft was piloted by Henri Farman, champion cyclist and one of the fathers of European aviation. Gabrielle believed that this event was more important for Duchamp than his discovery of Roussel's work some months later (unpublished interview with Gabrielle Buffet, recorded by Pierre André Benoit in October 1978 and quoted by A. Gervais in 'Connections: Of Art and Arrhe', in *T.D.U.M.D.*, p. 403; n. 12, p. 422.
 2. See J. Gough-Cooper and J. Caumont, *Plan pour écrire une vie de Marcel Duchamp* (Paris, 1977), pp. 15–16.
 3. *Entretiens* . . . , p. 31.
 4. *M.D. Escritos*, p. 154. The text of the stage adaptation of *Impressions d'Afrique* has not survived, and our only information consists of what was published at the time in *Le Journal des débats* (included in a special edition of *Bizarre* in honour of Roussel). See G. Raillard, 'Roussel: Les Fils de la vierge', in *M.D.A.*, p. 187.
 5. This is what Duchamp himself said about these works in his conversations with Cabanne. We will discuss it in greater detail later.
 6. See Gough-Cooper and Caumont, *Plan pour écrire*, p. 68. From a Dora Vallier interview with Léger, 'La Vie fait l'oeuvre de Fernand Léger', *Cahiers d'art*, no. 3 (1954), p. 140, republished by the same author in *L'Intérieur de l'art* (Paris, 1982), p. 63. Schwarz, in *T.C.W.M.D.*, pp. 595–6, quoted other sources for the same anecdote and said that Duchamp had no recollection of it.
 7. *T.C.W.M.D.*, no. 199, p. 439.
 8. *Entretiens* . . . , p. 119. Duchamp confirmed to the same interviewer that the *Large Glass* was a representation of the sum total of his experiences over a period of eight years (see p. 118).
 9. 'Naturally, it was my intention to draw some sort of conclusion from this dehumanization of the work of art that led me to think of the *ready-mades*' (Duchamp to James Johnson Sweeney, 1955, reproduced in *D.D.S.*, p. 181 (*M.D. Escritos*, p. 159).
 10. *Entretiens* . . . , p. 83.
 11. *Ibid.*, p. 84.
 12. Speaking about the possibility of being commissioned to produce a work of art, Duchamp came out with this uncompromising statement: 'I would have to think about it for two or three months before I decided to do something which would have meaning. And it would have to be more than just an impression or pleasure. I would need an objective, a meaning. That is the only thing that could help me. I would need to discover that meaning before I could make a start . . .' (*ibid.*, pp. 203–4).
 13. *M.D. Notes* . . . , p. 12.
 14. M. Foucault, *Raymond Roussel* (Paris, 1963), p. 22.
 15. Duhamel's critique was published in *Mercure*. See Roger Shattuck, *La época de los banquetes: Orígenes de la vanguardia en Francia: de 1885 a la Primera Guerra Mundial* (Madrid, 1991), p. 234.
 16. *T.C.W.M.D.*, p. 442.
 17. See the 'draftsmen's stools' in *The A. Lietz Company*

- Surveying & Drafting Supplies* catalogue. The firm was established in San Francisco and Los Angeles in 1882; I consulted the 1938 edition (p. 371). We know that, just as in the case of other industrial products, products were advertised from the end of the nineteenth century without any significant changes.
18. I have consulted the 32nd edition of this catalogue, but the model of the pedometer to which I refer certainly dates from before 1913. See *Catalogue of W. F. Stanley & Co. Manufacturers of Surveying, Mathematical, Drawing, Optical and Scientific Instruments, and Drawing Office Stationers and Furnishers* (London, 1931), p. 157.
 19. For further details, see Clair, *Duchamp et la photographie*.
 20. See Jean Clair, *Marcel Duchamp ou le grand fictif* (Paris, 1975); *M.D. Notes* . . . ; Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* (Princeton, 1983).
 21. *M.D. Notes* . . . , p. 102.
 22. Clair, *Duchamp et la photographie*, pp. 98–101.
 23. See William A. Camfield and Jean-Hubert Martin, eds, *'Tabu Dada': Jean Crotti et Suzanne Duchamp 1915–1922* (Bern, 1983), pp. 12, 93.
 24. *M.D.C.R.*, no. 89, p. 72.
 25. Described thus in old manuals. The quotation is taken from D. R. Sanjurjo, *Principios elementales de física* (Toledo, 1891).
 26. *Dictionnaire abrégé du surréalisme* (1938; Rennes, 1969), p. 23.
 27. Ulf Linde has connected Cubist 'demultiplication' of movement with the gyrating spokes of this first 'ready-made' (see *'La Roue de bicyclette'*, in *M.D.A.*, p. 35). On the other hand, his identification of the wheel with the gravity controller of the *Large Glass* does not seem all that convincing to me, as we shall see.
 28. *D.D.S.*, p. 36.
 29. See *T.C.W.M.D.*, p. 444, which contains Duchamp's supposed statement to R. Hamilton.
 30. The work in its cage, as we know it, presents many chronological problems. The letters which Duchamp sent to Katherine Dreier in 1935 and 1936 mention only those canvases with the pieces of thread stuck to them, and this caused Bonk to think that the cage and position of the glass layers must have been thought up by Duchamp in the summer of 1936 while he was working on the restoration of the *Large Glass* (see *M.D.T.B.V.*, p. 218). If we can be certain about this, 'the pouch' would have been conceived after the rulers. This rethinking on the dates would make more feasible a source such as the catalogues for drawing implements which we referred to earlier.
 31. *T.C.W.M.D.*, p. 444.
 32. See *Catalogue of W. F. Stanley & Co.*, p. 225; *The A. Lietz Company*, pp. 303, 338, 340.
 33. See *T.C.W.M.D.*, p. 444; R. Hamilton, *The Almost Complete Works of Marcel Duchamp* (London, 1966), p. 48.
 34. See *Catalogue of W. F. Stanley & Co.*, pp. 240–41; *The A. Lietz Company*.
 35. Compare this with the photograph of the standard metre published by F. M. Naumann in 'Marcel Duchamp: A Reconciliation of Opposites', in *M.D.A.C.*, p. 31. The similarity between this object and Duchamp's cage reproduced on the previous page is less apparent than that we are now suggesting between boxes of rulers and drawing implements.
 36. See *M.D.T.B.V.*, p. 212.
 37. *T.C.W.M.D.*, p. 449.
 38. *Ibid.*, p. 449.
 39. The original photo, in which we have a full view of Duchamp, is in the archives of the Philadelphia Museum of Art (13-1972-9, box 4, folder 1) and belongs to Alexina Duchamp.
 40. Nixola Greely-Smith, 'Cubist Depicts Love in Brass and Glass . . .', *Evening World* (New York), 4 April 1916, p. 3. The shovels common in France must have looked more like those advertised in the Walter Newbold & Co. catalogue ([London and Birmingham, 1891], p. 243; see illus. 20). Note, however, that they are shown as hanging 'in space' from their handles, in the same way that Duchamp showed his ready-made.
 41. *T.C.W.M.D.*, p. 456.
 42. *Ibid.*, p. 461.
 43. Peter Read, 'The *Tzank Check* and Related Works', in *M.D.A.C.*, pp. 95–105.
 44. See George H. Bauer, 'Duchamp's Ubiquitous Puns', in *M.D.A.C.*, p. 127.
 45. Nor should we forget the possible influence of the series of poems entitled 'La Tête étoilée' by Apollinaire. See Katia Samaltanos, *Apollinaire, Catalyst for Primitivism, Picabia and Duchamp* (Ann Arbor, MI, 1984), p. 102.
 46. *T.C.W.M.D.*, p. 461. Similar to Ulf Linde's interpretation: the comb, according to him, must be associated with the painter, since '... they both paint-comb'. He also believes that it should be associated with the 'lover's skin', the *Mona Lisa's* goatee and the girl in *Apollinère Enameled*. See U. Linde, 'Mariée célibataire', in W. Hopps, U. Linde and A. Schwarz, *Hommage à Marcel Duchamp* (Paris, 1964), p. 64.
 47. Samaltanos, *Apollinaire, Catalyst*, p. 103.
 48. See *Catalogue des tableaux, aquarelles et dessins par Francis Picabia appartenant à Marcel Duchamp dont la vente aux*

- enchères publiques aura lieu à Paris. Hôtel Drouot, salle no. 10 le lundi 8 mars 1926.* A copy of this very rare pamphlet is preserved in the library of the Museum of Modern Art, New York.
49. Le Corbusier, *The Decorative Art of Today* (Cambridge, MA, 1987), pp. 188ff.
 50. In 'A propos de moi-même' (1964), included in *D.D.S.*, p. 227. See also Samaltanos, *Apollinaire, Catalyst*, p. 104.
 51. *T.C.W.M.D.*, p. 463.
 52. In Walter Hopps, Arturo Schwartz and Ulf Linde, *Marcel Duchamp: Ready-mades etc. (1913–1964)* (Milan and Paris, 1964), p. 60.
 53. Literally 'from the spoon's bum to the widow's bum' (*M.D.N.*, no. 215, published in 391, no. 18 [1924], then in *D.D.S.*, p. 156).
 54. Included in Camfield, *Tabu Dada*, p. 15, n. 45.
 55. This photograph has been reproduced many times and appears, significantly, among the notes which refer to the 'infrafine'. See *M.D.N.*, no. 13.
 56. See Notes 9, 24. The latter, as we shall see, is of considerable importance for the genesis of *Etant donné*.
 57. Roché, 'Souvenirs sur Marcel Duchamp', in Lebel, *Sur Marcel Duchamp*, p. 80.
 58. The photograph is kept with Alexina Duchamp's papers in the Philadelphia Museum of Art (Duchamp Archives, box 5).
 59. *M.D. Notes* . . . , p. 166.
 60. *Ibid.*, p. 173.
 61. The original phial was broken, and Duchamp wrote to his friend Roché in 1949, asking him to order a replacement from the same pharmacy in Paris. This is the one which is now in the Philadelphia Museum.
 62. *M.D.C.R.*, no. 121.
 63. Shattuck, *La época de los banquetes*, pp. 230–31.
 64. Lawrence D. Steefel, *The Position of Duchamp's Glass in the Development of His Art* (New York, 1977), p. 368, n. 40.
 65. Herbert Crehan, 'Dada', *Evidence*, no. 3 (Autumn 1961), p. 38, included in *T.C.W.M.*, p. 477.
 66. Included under 'Femme' in *Dictionnaire abrégé du Surréalisme*, pp. 11–12.
 67. Claude Bragdon, *A Primer of Higher Space: The Fourth Dimension* (1913; New York, 1923), pl. 12.
 68. This postcard was published in May 1959 in a special edition of *Bizarre* dedicated to the *Mona Lisa*.
 69. Salvador Dalí, 'Why They Attack the *Mona Lisa*', *Art News*, LXII/1 (March 1963), pp. 36, 63–4.
 70. *L.H.O.O.Q.* was 'interpreted' in a particular way by the Surrealists (as were the *Large Glass*, *Bicycle Wheel* and other works by Duchamp). Important examples of these interpretations can be found in Magritte and Dalí (illus. 35, 36).
 71. 'Il y a celui qui fait le photographe et celle qui a de l'haleine en dessous.' See the catalogue for the Duchamp exhibition at the Fundación Caja de Pensiones (Madrid, 1984), p. 205.
 72. *D.D.S.*, p. 154; *M.D. Escritos*, p. 137.
 73. See William A. Camfield, *Marcel Duchamp Fountain* (Houston, 1989), p. 20.
 74. *Ibid.*, pp. 20–21.
 75. See *T.C.W.M.D.*, p. 466.
 76. Included in Camfield, *Marcel Duchamp Fountain*, pp. 37–8.
 77. Similar wording occurs in the defence of Duchamp attributed to Walter Arensberg by Beatrice Wood: 'An enchanting form has been revealed, liberated from its intended function, so therefore a man has made a clear aesthetic contribution' (Wood, *I Shock Myself*, p. 29).
 78. The complete picture, with a superimposed outline of the fountain, was published in Camfield, *Marcel Duchamp Fountain*, p. 36. Beatrice Wood said: '[Stieglitz] took great care over the lighting, and he did this with such skill that a shadow fell across the urinal as if it were a veil. The work was given a new name: *Madonna of the Bathroom*' (*I Shock Myself*, p. 30).
 79. Included in Camfield, *Marcel Duchamp Fountain*, p. 40. The references to the Madonna appear in other testimonies and in contemporary correspondence; see *ibid.*, p. 33ff.
 80. 'Niagara', is the most common trademark on urinals in Mexico today, which proves the universality of the association between a waterfall and cascading urine.
 81. *D.D.S.*, p. 272.
 82. 'Il est défendu de pisser dans la galerie.' This card can be found among the letters from Duchamp to Yvonne Lyon in the archives of the Getty Center for the History of Art and Humanities, Los Angeles (no. 850691).
 83. See *M.D. Notes* . . .
 84. A fragment of a photograph very similar to this one (perhaps taken during the same session) was among the 69 objects chosen by Duchamp as part of the contents of the *Boîte en valise*, illustrating that this was not an accidental image for the artist. See *M.D.T.B.V.*, p. 234.
 85. *M.D.N.P.L.G.*, no. 88, pp. 138–9.
 86. Otto Hahn, 'Passport no. G255300', *Arts and Artists*, 1/4 (July 1966), p. 10.
 87. Steefel, *The Position*, p. 343, n. 64.
 88. It is possible, however, to see in this work a mechanical re-creation of Rodin's *Secret* (1910). The famous

- sculptor (who, as we shall see, was a great influence on Duchamp) created two hands hiding something, a paper or short tube, perhaps a declaration of love. Rodin has always been considered an 'erotic' sculptor, and it would not have been surprising if Duchamp had wanted to take up the matter again with all of its implications: the most important thing in any love story is that it should develop in secret . . . The Rodin sculpture, next to Duchamp's ready-made, was published in *Marcel Duchamp in Perspective*, figs 19, 20.
89. See *T.C.W.M.D.*, pp. 486–7. *M.D.T.B.V.*, p. 222, says that the work ended up in the hands of H.-P. Roché sometime in the mid-1920s. What is certain is that the Dreier sisters rejected *Why Not Sneeze Rrose Sélavy?* immediately as if they were offended by it.
 90. Interview with Jean Marie Drot, quoted in *T.C.W.M.D.*, p. 487.
 91. See *M.D. Notes . . .*, p. 62. This author writes about how the marble cubes represent a chance lay-out similar to both the Bragdon diagrams and the image used by Duchamp, in 1925, when he designed the poster for the third French chess championship competition. The connection between *Why Not Sneeze Rrose Sélavy?* and the problems of the fourth dimension is clearer if we bear in mind that Duchamp chose a photograph of the latter for the cover of *La septième face du dé* by G. Huguet (Paris, 1936).
 92. Steefel, *The Position*, p. 41.
 93. It appears that Duchamp was in the habit of having his little jokes at the expense of anyone who commissioned work from him. A similar case occurred, many years later, when he was supposed to produce a book in collaboration with R. Lebel, for which he produced, in 1959, *With My Tongue in My Cheek, Torture-morte and Sculpture-morte*. The project never really got off the ground because these works were considered by their recipients as 'jokes in bad taste'. See R. Lebel, 'Duchamp au musée', in *M.D.A.*, p. 123.
 94. *T.C.W.M.D.*, p. 471.
 95. Statements included in *ibid.*, p. 470.
 96. This is Schwarz's interpretation; see *T.C.W.M.D.*, p. 471.
 97. 'L'ombre portée du porte-chapeau qui est en haut' (*Entretiens . . .*, p. 108).
 98. See Ulf Linde, 'La Roue de bicyclette', in *M.D.A.*, p. 41. Although I do not accept this interpretation, I do go along with the idea of associating the iconography and lay-out of *Tu m'* with the *Large Glass*.
 2. 'PRECISION PAINTING . . .'
(THE MECHANISMS OF BACHELORS)
 1. These large pictures were called 'machines', and Duchamp's great discovery would have been to take the term in its literal sense. He told Cabanne how he and Picabia found themselves in 1911 at the Salon d'Automne, to which 'he had sent a large "machine", the Bathers' (*Entretiens . . .*, p. 52).
 2. 'Propos', initially included by J. J. Sweeney in 1946. See *D.D.S.*, pp. 173–4.
 3. See Raymond Roussel, *Impresiones de Africa* (Madrid, 1990), pp. 38ff.
 4. See Ralph Hyde, *Panoramania! The Art and Entertainment of the 'All-Embracing' View* (London, 1988); Silvia Bordini, *Storia del panorama: La visione totale nella pittura del XIX secolo* (Rome, 1984).
 5. *Entretiens . . .*, pp. 22–3, 71–2.
 6. *M.D. Escritos*, p. 80.
 7. Edwin A. Abbott, *Planilandia*, Spanish edn (Madrid, 1976) based on the second edn of c. 1884.
 8. G. de Pawlowsky, *Voyage au pays de la quatrième dimension* (Paris, 1912; most recently Paris, 1971). See Clair, *Le grand fictif*.
 9. For more information, see *M.D. Notes . . .*, and Dalrymple Henderson, *The Fourth Dimension*.
 10. *Entretiens . . .*, p. 67.
 11. See Katherine Kuh, 'Marcel Duchamp', in *The Artist's Voice: Talks with Seventeen Artists* (New York, 1962), p. 90.
 12. The influence of school lessons in technical drawing on Duchamp's work is examined by Molly Nesbit in 'Ready-made Originals: The Duchamp Model', October, xxxvii (Summer 1986), pp. 53–64, and 'The Language of Industry', in *T.D.U.M.D.*, pp. 351–94.
 13. A curious 1907 text bears witness to this preoccupation; see Leonardo de Torres Quevedo, 'Sobre un sistema de notaciones y símbolos destinados a facilitar la descripción de máquinas', *Ingeniería*. The symbols which he proposes and their systematic arrangement appear to have a certain affinity with Duchamp's universe.
 14. Duchamp to Jean Suquet, 25 December 1949, reproduced in J. Suquet, *Miroir de la mariée* (Paris, 1974), p. 247.
 15. *M.D.N.*, no. 66.
 16. Kuh, *The Artist's Voice*, p. 83. Four years later, he said more or less the same thing, but also mentioned the *Armes et Cycles de Saint Etienne* catalogue. See Alain Jouffroy, *Une Révolution du regard* (Paris, 1964), p. 115.
 17. *M.D. Escritos* (Green Box), p. 77.
 18. 'In the poem: the undressing is not an extreme of the

- picture, but the bachelor means of achieving the expansion of bachelor undressing' (*M.D.N.*, no. 153). This appears to be an exclusive reference to the 'text' or inscription by means of which the bride and bachelors come into contact, as we shall see.
19. Duchamp said that the purpose of the text which accompanies the *Bride* would be 'to explain (and not to express in the manner of a poem)' (*M.D.N.*, no. 164). He said that the explanation would be visual and would not entail the use of any alphabet, a statement which contradicts the very idea of producing a catalogue. It is obvious that he toyed with many incompatible ideas and that none of them were ever put into practice.
 20. 'Text. Make the text look like a demonstration, drawing together the decisions taken by conventional formulae of inductive reasoning in some cases, deductive in others' (*M.D. Notes* . . . , no. 69; also, in a similar way, Note 77).
 21. Even the colour of the cage has meant that it is possible to talk of the similarity between *Boîte vert* and *verre*. See G. H. Bauer, 'Duchamp's Ubiquitous Puns', in *M.D.A.C.*, p. 130.
 22. *Entretiens* . . . , p. 69.
 23. From the many interpretations of this part of the title, we can single out that of Suquet, which associates 'la virgule' ('comma' in French) with the Latin word *virgula*, diminutive of *virga* (male member, penis). He believes that *même* (even) should be understood as 'the same', referring to the infinite repetition of sexual activities. See Jean Suquet, 'Possible', in *T.D.U.M.D.*, pp. 89, 108.
 24. *M.D. Escritos*, p. 37.
 25. *Entretiens* . . . , pp. 68–9.
 26. 'Cela n'a pas d'importance'. See Beatrice Wood, 'Marcel', in *M.D.A.C.*, pp. 12–17. In her autobiography (*I Shock Myself*), it is clear that there was no sexual relationship between them.
 27. Francis F. Naumann, 'Affectueusement Marcel: Ten Letters from Marcel Duchamp and Jean Crotti', *Archives of American Art Journal*, xx/4 (1982), p. 10.
 28. A. Breton, 'Le Phare de la mariée', *Minotaure* (October 1934), p. 94.
 29. Duchamp owned many of these 'machine' pictures by Picabia, if we are to believe the *Catalogue des Tableaux, Aquarelles et Dessins par Francis Picabia. Parade amoureuse* (illus. 61) appeared as lot 26 and is reproduced in this catalogue.
 30. Quoted in Marc Dachy, *Journal du mouvement dada* (Geneva, 1989), p. 140.
 31. F.T. Marinetti, *Manifestos y textos futuristas* (Barcelona, 1978), pp. 78–9. Statements written in the same tone can be found in other texts by Marinetti; thus in 'The Woman's Scorn': 'We have also dreamed of creating our mechanical son one day, the fruit of free will, the synthesis of all laws, the discovery of which will be precipitated by science' (p. 73). One of the fundamental works for this whole question was Marinetti's play *Poupées électriques* (Paris, 1909), which was published with the first Futurist manifesto as a preface.
 32. A copy of this drawing in the *Green Box* is dated 1914, but we have already stated that this date is thought to be wrong. See *T.C.W.M.D.*, p. 439.
 33. These diagrams are only partially accurate. It appears that Duchamp did not progress much further than what he learned from text-books on technical drawing such as that by Ris-Paquot (1887). See Nesbit, 'Ready-made Originals'. The two drawings were copied between 1931 and 1932 for reproduction in the *Green Box* (*T.C.W.M.D.*, p. 439).
 34. *M.D.N.*, no. 133. Duchamp is obviously not referring here to what we see in the *Large Glass* as it is today, but to an abandoned project according to which an energy receptor or generator produced gas which passed to the capillary tubes and then to a triangular filter until it arrived at the butter churn. We shall take a more detailed look at this later.
 35. Duchamp was conscious of the fact that the lower part of the *Large Glass* had much in common with physico-chemical apparatuses and not only with machines as such. In a note he wrote: 'The word apparatus in place of the machine' (*M.D.N.*, no. 104).
 36. Unless we connect the extremities of the scissors with the notes which speak of *Buridan's Donkey*; in that case, as we shall see, the opening of the blades determines the fall of a weight which causes the gas from the splash to explode. This may have been one of Duchamp's primitive projects, but it is significant that he did not include any of these ideas among the papers for the *Green Box*.
 37. Duchamp spoke of '1 cm de section prise au centre (grandeur apparente sur le définitif)' (*D.D.S.*, p. 83). I do not believe, as Jean Clair supposes ('Marcel Duchamp et la tradition des perspectiveurs', in *M.D.A.*, p. 149), that the section of the visual pyramid cuts the sledge in half, leaving one part behind the glass and the other on the same side as the viewer. This note indicates, in my opinion, that such rods would measure one centimetre in the centre of its degradation of perspective so that they would appear thicker near the observer and thinner further away.
 38. 'A Propos of Myself' (1964), in *D.D.S.*, p. 225.

39. *M.D.N.P.L.G.*, no. 125; *M.D. Escritos*, p. 72.
40. The photograph must have been taken by Man Ray in New York about 1916 and was included by Duchamp in the *Green Box*. Republished, without any explanation, in the catalogue for the 1984 Duchamp exhibition in Madrid, p. 216.
41. Linde defended the thesis that the whole work is an anagram of Duchamp, in the style of those which he designed for the names Picabia and Breton (illus. 70). See *Marcel Duchamp* (Stockholm, 1986), p. 135.
42. *M.D. Escritos*, p. 205; Adcock (*M.D. Notes* . . . , pp. 176–7) insisted on the mathematical implications of the gyratory lay-out, given Duchamp's obsession with generating the third dimension immediately after the second. We have already seen that this is not incompatible with an interpretation which takes into account the overall erotic theme of the *Large Glass*.
43. One of them was painted in Blainville by Emile Nicole in 1886, during one of the painter's visits to the Duchamp household. See the reproduction in Gough-Cooper and Caumont, *Plan pour écrire*, p. 41.
44. The Laxey device on the Isle of Man was of the same type as the so-called 'gravity wheels' and the same as the one seen in the *Large Glass*. It had a diameter of 22 metres and its power was transmitted along rods resting on wheels which ran on steel rails to reduce friction. See *The 'PELTON' Hydraulic Wheel* . . . (San Francisco and New York, 1899), p. 55. It appears, then, that Duchamp's idea of juxtaposing a hydraulic wheel and something slippery already existed, to a certain extent, in the world of industry.
45. For more information, the following brochures and catalogues (among others) should be consulted: *Brault, Teisset & Gillet ingénieurs—constructeurs: Construction de moteurs hydrauliques de tous systèmes* (Paris, c. 1895); *Nuevo folleto de las turbinas de James Leffeld, normales CASCADA y redncidas: Fabricadas por la antigua y celebrada casa de James Leffeld y cia* (Springfield, OH, 1896); *The 'PELTON' Hydraulic Wheel* . . . Catalogues of this type were usually published in all of the main European languages without alteration to the illustrations.
46. We have already seen that, in reality, they are situated behind, although the absence of 'aerial perspective' makes them appear suspended above the sledge.
47. 'Receptor which acts directly on the 4 wheels of the carriage . . .' and ' . . . the wheels are made of slate' (*M.D.N.*, nos 81, 83).
48. The form of this 'clamp' is quite extravagant. Duchamp may have copied it from the metal bars used in electrolysis. The image in illus. 75 is taken from *Hawkings Electrical Guide*, vol. 10 (New York, 1917), p. 3179.
49. *M.D.N.P.L.G.*, no. 128, pp. 188–9.
50. *M.D.N.*, nos 92, 107.
51. *M.D. Escritos*, p. 67.
52. *Ibid.*, p. 66; *D.D.S.*, p. 82. It is possible that a variant of this heavy weight which falls and makes the sledge move was what Duchamp referred to in early notes as *Buridan's Donkey* (*M.D.N.*, nos 101, 153.) But the mention of this element at the same time as the idea of the scissors was developing suggests that the same thought gave rise to two different mechanisms: the clamp or bottle to move the sledge, and a type of bomb which would fall on the splash and somehow causes it to explode (see below).
53. *D.D.S.*, p. 82; *M.D. Escritos*, p. 66.
54. Duchamp to Marcel Jean, 14 July 1952, in *Lettres à . . . Marcel Duchamp*, p. 50.
55. *M.D. Escritos*, p. 157.
56. Clair, *Le grand fictif*, p. 160 (reprinted in Michael Gibson, *Duchamp Dada* [1991], p. 202); Linde, *Marcel Duchamp*, p. 148.
57. See the Walter Newbold & Co. catalogue, p. 200; I have seen another machine of this type, but even more like Duchamp's mill, in an advertisement for the *Taller de construcción de máquinas Hijo de José Guardiola* (Barcelona, early 1920s?).
58. *M.D.N.*, no. 118; *M.D. Escritos*, p. 77.
59. *M.D.N.P.L.G.*, no. 140, p. 208.
60. *M.D.N.*, nos 115, 118.
61. Statements collected by Francis Roberts; see 'I Propose to Strain the Laws of Physics', *Art News*, LXVII (December 1968), p. 63.
62. *M.D.C.R.*, p. 72.
63. Wood, *I Shock Myself*, p. 24.
64. In fact, he mentions a 'Principle [adagio] of spontaneity which explains the gyratory movement of the mill without any other help' (*M.D.N.P.L.G.*, no. 140, pp. 210–11), but this principle is nothing more than the one stating that 'the bachelor grinds his own chocolate'. I do not believe that this should prevent our attempting to discover another mechanical logic.
65. *M.D.N.*, no. 142.
66. See the catalogue entitled *Ercole Marelli & Co. Ventilateurs et moteurs électriques* (Milan, 1908?).
67. *M.D.N.*, nos 101, 153. It is possible that the mobile fell and was lifted up by the same vertical movement he imagined for the scissors. In any case, it is significant that Duchamp named this mechanism with an allusion to the logical paradox attributed (apparently without foundation) to the French fourteenth-century philosopher Jean Buridan: a donkey, faced with two bales of hay of equal quality, will die as a result of its

- inability to decide between the two. Duchamp must have been amused by the possibility that the object (a grenade?), subjected to the random possibility of various movements of equal probability, might not have fallen on to the splash, remaining immobile in the upper part, despite the opening of the scissors.
68. Suquet, on the other hand, assigned an important role to this mobile when he explained how the machinery of the *Large Glass* worked. See one of the last explanations of his ideas in 'Possible', in *T.D.U.M.D.*, pp. 85–131.
 69. *M.D.N.*, no. 123.
 70. Michel Leiris, 'Artes y Oficios de Marcel Duchamp' (1946), in *Huellas* (Mexico City, 1988), p. 114.
 71. *D.D.S.*, pp. 41–2; *M.D. Escritos*, p. 81.
 72. A more recent echo of these metal hearts (later converted into moulds in which gas was produced) could be a work of Tristan Tsara, *Cœur à gaz*, first shown in Paris, with costumes by Sonia Delaunay, in June 1921.
 73. Interview with Jean Schuster (1957), according to the translation by Octavio Paz, *Apariencia desnuda* (Madrid), p. 76. See also *M.D. Escritos*, p. 204.
 74. 'Decapitation' appeared here for the first time in Duchamp's oeuvre, but was to play an important role in his later works as in the world of Surrealism generally. See Charles F. Stuckey, 'Duchamp's Acephalic Symbolism', *Art in America*, LXV (January–February 1977), pp. 94–9. The precedent of Jarry, who described a 'machine à décerveler', was quoted by M. Jean in *The History of Surrealist Painting* (New York, 1960), p. 98.
 75. *M.D.N.*, no. 103; also in the *Green Box* (*M.D. Escritos*, p. 62).
 76. More precisely, 'cemetery of uniforms and liveries'. This primitive allusion to death, in connection with the libidinal drive, anticipates what Duchamp developed later in *Etant donné*.
 77. See Michel Sanouillet, 'Marcel Duchamp and the French Intellectual Tradition', in *M.D. (PMA & MOMA)*, p. 53.
 78. See, for example, the images in the books reproduced in Nancy Villa Bryk, ed., *American Dress Pattern Catalogs, 1873–1909: Four Complete Reprints*, (New York, 1988).
 79. See *The 1902 Edition of the Sears Roebuck Catalogue* (facsimile, New York, 1986), pp. 334, 1121.
 80. Olivier Micha, 'Duchamp et la couture', in *M.D.A.*, p. 33. In reality, it resembles more a dummy with pieces of a clothes pattern, as if the hypothetical uniform were half finished.
 81. This drawing was published for the first time in the catalogue for the exhibition in New York and Philadelphia (*M.D. [PMA & MOMA]*), p. 268, and is not included among the complete works assembled by Schwarz. See also *M.D.C.R.*, no. 84.
 82. J. Wyatt, *The Tailor's Friendly Instructor* (London, 1822); *Late Georgian Costume* (facsimile, Mendocino, CA, 1991), pls I, II.
 83. On the back of the Yale cardboard: *Les neuf uniformes mâlic sont à l'ellipse*. See *T.C.W.M.D.*, no. 215, p. 448.
 84. See U. Linde, 'La Perspective dans les neuf moules mâliques', in *M.D.A.*, pp. 160–65; also a graphic analysis of the Cuirassier in *Marcel Duchamp*, p. 63.
 85. *Entretiens* . . . , p. 85.
 86. Displays of these procedures could be seen at almost all of the world fairs. See, for example, the information and engravings in *Frank Leslie's Illustrated Historical Register of the Centennial Exposition 1876* (facsimile, New York, 1974), p. 216.
 87. Oral communication, spring 1989, during a visit (with Professor Aurora Rabanal) to the Glass Factory and Museum of La Granja (Segovia).
 88. *M.D. Escritos*, p. 55.
 89. *M.D.N.*, nos 112, 114.
 90. P. Ledoux, *Leçons de choses* (Librairie Hachette), p. 34. The edition from which we have quoted must date from the early 1920s, but the ideas (and illustrations) seem to date back to the last years of the nineteenth century. It was, after all, quite normal to republish school primers, with few alterations, year after year.
 91. See a popular account from about the middle of the nineteenth century in Edmond Texier, *Tableau de Paris* (Paris, 1852?), vol. II, p. 238. Another interesting description of how 'illuminating gas' was obtained is included in *The Great Industries of the United States* (Hartford, Chicago and Cincinnati, 1872), pp. 784–91.
 92. The sex points of the other eight malic moulds create (in the preliminary sketch) an octagonal polygon, irregular but fairly symmetrical, in the centre of which the bell-boy is situated. It is significant that the heart is the 'messenger boy', the only one who can logically be connected to all the rest.
 93. Some pictures of these engines, reproduced in advertisements of the time, can be seen in D. D. Hatfield (compiler), *Aeroplane: Scrapbook no. 1* (1976), pp. 14, 24, 64.
 94. 'Each one of the eight malic forms is constructed above and below a horizontal plane, the sex plane which intersects them at the sex point' (*M.D.N.P.L.G.*, no. 92, pp. 146–7).
 95. 'J'ai un lit avec un trou rond au milieu pour la tête', in 'Souvenirs sur Marcel Duchamp', published in Lebel, *Sur Marcel Duchamp*, p. 81. 'In the middle' refers to the

- centre of the bed-head, but it seems more logical to associate it with the geometrical centre of the bed – that is to say, at the sex point. We should then be faced with another ready-made thus far not included in Duchamp's complete works.
96. In another note to the *Green Box*, he spoke of the possibility of making the tubes twice as long when they also had a double section. This is what he called 'physics for fun', saying that it was 'intended to lend importance not to the unit of longitude but to the phenomenon of 'the expansion' of the gas (*M.D. Escritos*, p. 84). The result is an interesting contamination of the bachelor mechanism by ingredients peculiar to human behaviour (masculine sexuality would be the best-known example of 'physics for fun'); we shall see that this fusion between the mechanical and the organic is more evident in the universe of the bride.
97. *M.D.N.P.L.G.*, no. 98, pp. 152–3. *Paillette* is normally translated as 'sequin', but Duchamp was talking about objects which are brilliant and elongated, like needles or straws.
98. Bonk confirms that rulers were not used for the picture *Network of stoppages*, but were used later in *Tu m'*. Duchamp wanted to simplify the fiddly work of achieving the right perspective for the 'network' by copying a photograph of the picture which had been taken from the appropriate angle (illus. 102), and although he later confessed to Hamilton that the experiment had been pointless, I think that the final drawing in the *Large Glass* really was made from this photograph. It is sufficient to compare the two configurations. See *M.D.T.B.V.*, pp. 254–5.
99. *M.D.N.*, no. 114.
100. *M.D.N.P.L.G.*, no. 100, pp. 154–5.
101. *Ibid.*, no. 101, pp. 156–7.
102. *D.D.S.*, p. 78. But this dust was not preserved in equal amounts in all of the sieves, and the last four are much darker than those on the left; one might say that Duchamp wished to suggest greater condensation of the gas in the final stages of its journey, as if this would justify its fall on to the splash.
103. *M.D.N.P.L.G.*, no. 100, pp. 154–5.
104. The nine imperceptible pin-holes in the sieves form 'the same shape as the nine malic moulds, a kind of polygon' (*M.D.N.*, no. 160).
105. *M.D.N.*, no. 132.
106. Several of them are described and illustrated in *S.A. Labor-saving Machinery: A Reference Book of Information Relating to the Design and Application of Conveying Elevating Screening & Transmission Machinery & Accessories*, published by the Stephens-Adamson Mfg Co. (Aurora, IL, 1916). See, among others, pp. 606, 703, 708.
107. We have consulted the tenth edition of *Premières notions de science physiques et naturelles à l'usage des candidats au certificat d'études primaires* (Lyon and Paris, 1913), p. 207. This book (extremely popular in its time, with a print-run of 265,000) or one like it must have been studied by Duchamp. The important thing is to realize that information about this industrial process was included in the French primary-school curriculum.
108. See D. Bellet, *Beautés et forces de la nature*, p. 179. The strangest of all of these books, and the one which must have given Duchamp his literary inspiration for 'physics for fun', is 'Tom Tit' (Arthur Good), *La Science amusante* (three 'series', Paris, 1890, 1892, 1906; facsimile of 'first series', Paris and Geneva, 1985).
109. *D.D.S.*, pp. 100–101.
110. *M.D.N.*, nos 101, 102; *M.D. Escritos*, p. 61.
111. See, for example, the reproductions in Ledoux, *Leçons de choses and Premières notions*, p. 248.
112. See the half-title page of C. Coupan, *Machines de culture* (Paris, 1907); models of industrial butter churns from the same era can be seen in Santos Aran, *Quesos y manteca: Higienización de la leche: Productos derivados* (Madrid). See also the interesting advertisement (showing an elegant woman operating a churn) in the 1908 *Sears Roebuck Catalogue*, p. 20.
113. This can be deduced from the drawing on a piece of paper from the Brasserie de L'Opéra de Rouen (illus. 111; *M.D.N.*, no. 102). Also, more clearly: 'Après les trois fracas = Eclaboussure et non pas canalisation verticale de la rencontre au bas du pentes' (*M.D.N.*, no. 115).
114. Similar to that of the mobile which falls vertically and strikes the centre of the falling gas, as can be seen in the figure in Note 116 of the lay-out by A. Schwarz (*M.D.N.P.L.G.*, pp. 172–3). This is the only trace in the *Green Box* of 'Buridan's Donkey' as mentioned in the posthumous notes.
115. That Duchamp may have been inspired by popular helter-skelters is suggested by the postcard published by Suquet in 'Possible' (illus. 115; *T.D.U.M.D.*, p. 92).
116. *M.D.N.P.L.G.*, no. 118, pp. 174–5.
117. Another fantasy for the spiral was to use a pack of cards to simulate a slope (*M.D.N.*, no. 117, pp. 172–3). As a 'commentary' on this part, Duchamp also thought of including a photographic reproduction of his 1914 drawing *Avoir l'apprenti dans le soleil* (*M.D.N.*, no. 110, pp. 166–7); it appears obvious to me that this would

- have been included in the explanatory booklet to accompany the *Large Glass*.
118. This phrase, which must have appealed to Duchamp, also appears in *M.D. Notes* ... (nos 188, 263). Jean Clair has pointed out that it was not devised by Duchamp and that it has been known by French speakers since time immemorial. See 'Sexe et topologie', in *M.D.A.*, p. 57, n. 5. It is therefore a kind of linguistic ready-made.
 119. For the source of the pyramids in this picture in treatises on perspective and in Jouffret's *Mélanges de géométrie à quatre dimensions*, see the works of J. Clair ('Marcel Duchamp et la tradition des perspecteurs', in *M.D.A.*, pp. 141-3) and C. Adcock ('Twisting Our Memory of the Past for the Fun of It', in *T.D.U.M.D.*, p. 329).
 120. An old photograph of the 'small glass' hanging in front of a balcony is preserved in the Duchamp archives in the Philadelphia Museum (box 5, folder 8).
 121. Suquet has shown that the escape point from the *Large Glass* controls the lines of the Buenos Aires glass, and '... it is therefore certain that Duchamp thought of integrating it.' See 'Possible', in *T.D.U.M.D.*, p. 123.
 122. Herbert Molderings has also recently defended the idea of a change in the technical/scientific system 'which was of an optical nature in order to discover a metaphor of the meeting between the bride and her bachelors'. See his involvement in the conversations concerning the papers presented by Suquet and Rosalind Krauss in *T.D.U.M.D.*, pp. 129, 469.
 123. *M.D.N.P.L.G.*, no. 119, pp. 176-7.
 124. The first study for the ophthalmic witnesses was made by Duchamp in Buenos Aires when he painted *A regarder (l'autre côté du verre) d'un oeil, de près, pendant presque une heure* (1918). He began to transfer the three circles to the *Large Glass* in 1920, after he had secured the dust to the sieves; in order to achieve the same reflection as industrial mirrors, he arranged for a specialist manufacturer to silver-plate the whole of this part of the work and then removed, as carefully as possible, everything surrounding the drawing. The process was such a delicate one that Duchamp did not complete it until the restoration of the glass in 1936. See *M.D.T.B.V.*, p. 248. In order to draw these circles correctly in perspective, he had to use elipsographs such as those seen in old technical drawing catalogues (see *Catalogue of W.F. Stanley & Co.*, p. 239). It could also be said that Duchamp thought of the *Large Glass* as a kind of inventory or practical resolution of everything thought up by 'precision painting'.
 125. *M.D.N.P.L.G.*, no. 119, pp. 176-7. It is obvious that the idea had not been completely thought through when he wrote his notes for the *Large Glass*, one more proof that the ophthalmic witnesses, as we know them, were incorporated into the plan for the work after 1918.
 126. See E. Jouffret, *Traité*, p. 16.
 127. In a photograph of Man Ray, taken about 1920-21, we see different works by Duchamp (including the *Rotative plaques verre*); nailed to the wall is an opticians' chart which is almost identical to the figure in the centre of Duchamp's work (illus. 125), conclusive proof of the precise figurative source. See Michael Gibson, *Duchamp Dada* (Paris, 1991, p. 212). Duchamp, for his part, confirmed that he had copied the opticians' charts (*Entretiens* ..., p. 108), and it is obvious that he took as his model the disks used in tests for astigmatism (illus. 126); the whole device appears to be a vertical deconstruction of what could be seen in apparatuses such as the Javal-Schiotz ophthalmometer (illus. 127). See G. E. de Schweinitz, *Diseases of the Eye: A Handbook of Ophthalmic Practice* (Philadelphia, 1899), pp. 174, 664. I have also noticed the presence of similar devices in W. A. Fisher, *Ophthalmoscopy, Retinoscopy and Refraction* (Chicago, 1937). Different types of chart can be seen in works such as A. E. Ewing, *Visual Test-Types, Test-Characters, Test-Letters and a Uniform Central Test-Object for Measuring the Acuity of Vision* (St Louis, 1926).
 128. *M.D. Notes* ..., p. 91.
 129. *M.D.N.*, no. 197.
 130. *M.D. Escritos*, p. 204.
 131. *M.D.N.*, no. 140.
 132. In the *Notes* (no. 141), it is suggested that the watch mechanism should be combined with the cylinder-bosom, which demonstrates that the boxing match is a device on the borderline between the bachelors and the bride. As for the execution of the *Large Glass*, Duchamp had the idea of 'introducing a useless clogged wheel, worn out on one side', thus confirming the close relationship between this element and the work of the other Dadaists.
 133. *M.D. Escritos*, p. 156.
 134. Some useful ideas about these machines can be found in Harry McKeown, *Pinball Portfolio* (London, 1976), and Gary Flower and Bill Kurtz, *Pinball: The Lure of the Silver Ball* (1988).
3. '... AND THE BEAUTY OF INDIFFERENCE'
(THE BRIDE STRIPPED BARE)
 1. Note the phonetic game: Udnie = nudie. Picabia also played at undressing ...
 2. See, for example, the corresponding sections in *The*

- 1902 Edition of the *Sears Roebuck Catalogue*.
3. We have consulted the *Catálogo general ilustrado de Pablo Hartmann*, printed perhaps in Barcelona about 1910 (our copy was addressed to a Madrid doctor in 1912). Almost identical editions of these catalogues were produced in all of the main European languages.
 4. *Entretiens* . . . , p. 75.
 5. *M.D.N.*, no. 146.
 6. *M.D.N.P.L.G.*, no. 66, pp. 104–5.
 7. *Ibid.*, no. 85, pp. 136–7.
 8. *Ibid.*, no. 83, pp. 132–3. Similar lines can be seen in another diagram (*ibid.*, no. 82, pp. 130–31) (illus. 136). This polygon reappears here for the last time before disappearing into the base of the Milky Way (we have already seen that it approximated the ‘sex polygon’ of the nine malic moulds projected ‘in *mappa-mundi* style’ on to the sieve-cones).
 9. Duchamp said that these terms complement each other (*M.D.N.P.L.G.*, no. 122, pp. 178–9).
 10. *M.D.N.*, nos 149, 152.
 11. *M.D.N.P.L.G.*, no. 122, pp. 178–9.
 12. Ulf Linde has defended the thesis that the bicycle wheel is to be identified with the circular platform of the gravity regulator. The spiral which appears in the note to the *Green Box* (illus. 137) demonstrates, according to him, that there is also a ‘demultiplication’ of movement here (see ‘The Bicycle Wheel’, in *M.D.A.*, pp. 35–41). But it is obvious that the spiral represents a spring, and we should think of it as a mechanical alternative to the various ideas Duchamp came up with for the gravity regulator. The *guéridon* of the 1947 exhibition (illus. 140; see below) proves that Duchamp had in mind a flat surface which looked more like a saucer or small, round table than a bicycle wheel.
 13. *M.D.N.*, no. 152.
 14. *Ibid.*
 15. Duchamp re-used this device when he showed the gravity regulator in the 1947 Surrealist exhibition in the shape of a *guéridon* at an angle. See Clair, *Duchamp et la photographie*, p. 25. This work was, in fact, made by Matta following Duchamp’s instructions, and Suquet has suggested that it may have a humorous significance: ‘Et tu es gai, ris donc.’ Or it may be that the cure for ‘gravity’ is laughter (see ‘Possible’, in *T.D.U.M.D.*, p. 105). I believe, in any case, that this realistic, objective translation, in 1947, of the mechanisms of the *Large Glass* fits in with *Etant donnés*, on which Duchamp had recently begun working in secret.
 16. *M.D.N.*, no. 146.
 17. *M.D.N.P.L.G.*, no. 84, pp. 132–3.
 18. See Jurgis Baltrusaitis, *Anamorphoses* (Paris, 1984). For more information, see Clair, ‘Marcel Duchamp et la tradition des perspectiveurs’, in *M.D.A.*, pp. 124–59.
 19. *M.D.N.*, no. 184.
 20. It appears that the random lay-out of the pinholes was the final stage in the evolution, contaminated by the spirit of Dadaism, of the polygon of the nine malic moulds, which he thought of placing at the intersection between the plates of glass. In the *White Box*, we read: ‘Force the splash to pass through 9 pinholes which look like the 9 moulds’ (*M.D. Escritos*, p. 107). Was this polygon intended to be the figure in the Wilson-Lincoln apparatus?
 21. *M.D.N.P.L.G.*, no. 75, pp. 120–21. In the same note, he wrote: ‘The clouds are more likely to be made of shaving soap’; we can associate this with the famous picture of Duchamp, taken by Man Ray, which was used for the Monte Carlo roulette shares (see below).
 22. ‘[This] is the most important part of the picture (graphically like a surface). It is, in general, the bride’s halo, the gathering of her splendid vibrations’ (*M.D. Escritos*, p. 52).
 23. *M.D.N.P.L.G.*, no. 82, pp. 130–31.
 24. *Ibid.*, no. 77, pp. 122–5. I do not believe that we should deduce from this that the whole of the *Large Glass* was originally conceived as a large negative photograph, as is supposed by Jean Clair (see *Duchamp et la photographie*).
 25. *M.D.N.P.L.G.*, no. 81, pp. 128–31.
 26. ‘This Milky Way flesh must serve as a support for the inscription which is connected to the cannon shots’ (*M.D.N.P.L.G.*, no. 82, pp. 130–31).
 27. ‘Use perhaps something less transparent (unpolished glass or grease paper or varnish on the glass) allowing a provisional opacity made from the splash upstream and downstream’ (*M.D.N.P.L.G.*, no. 76, pp. 122–3).
 28. The letters of this word would run from left to right and would then be folded (Suquet, ‘Possible’, in *T.D.U.M.D.*, p. 101). Although it is not clear why Suquet supposed that this was the word of the inscription and not some other text, I must express my irrational sympathy for his hypothesis.
 29. ‘[The three pistons] act as filter and grille (in the sense of a secret pattern which has to be decoded) and present to the female pendant the various combinations/ways through which the orders of the female pendant are transmitted to the splash and the pinholes (shots)’ (*M.D.N.*, no. 105).
 30. *M.D.N.P.L.G.*, nos 79–82, pp. 126–31.
 31. *M.D.N.*, no. 181.
 32. *M.D. Notes* . . . , p. 153.

33. Jouffret, *Traité*, pp. xxviii–xxix.
34. Bragdon, *A Primer of Higher Space*, pl. 19.
35. The book was published in 1913, and the famous drawing of Neuilly (illus. 62) is dated 1914 in the *Green Box*, although Schwarz believes this should be 1913 (*T.C.W.M.D.*, p. 439); Duchamp did not commence work on the *Large Glass* until he arrived in New York in 1915. There is no doubt that he became acquainted with Bragdon's work later. There is therefore a certain margin for speculation as to how Duchamp was first stimulated by the American author's work.
36. Everyone who visited Duchamp's studio while he was working on the *Large Glass* noticed how it was constructed from flat metal frames. Georgia O'Keeffe said: 'And the offcuts of the pieces of metal which he had cut out to trace the shapes for the glass were lying on the floor exactly where they had landed when he cut them' (*M.D. [PMA & MOMA]*, p. 214). H.-P. Roché said: 'Some parts [of the *Large Glass*] were covered with metal shapes painted with red lead and stuck to the glass by means of a transparent varnish' (*Victor*, p. 65).
37. Some commentators believed that they saw latent images of a woman in the *Mariée* painted in Munich. Lebel said that Duchamp confirmed his 'interpretation' when he said: 'This is meant to be the head, but accidentally an involuntary profile can be seen here' (*Sur Marcel Duchamp*, p. 65). I do not believe that we should deduce from these words anything other than the possibility of recognizing a posteriori images which he never thought of while he was painting this work. More fundamental, it seems to me, are the 'discoveries' of Steefel, who saw a series of hidden figures representing 'a horrible ritual of sadistic torture instead of a pleasing scene of flaming figures' (*Duchamp's Glass*, p. 142). I think that we should give more credit to the idea of a fusion of the mechanical and the visceral, expressed by Duchamp himself, and to the reference to a hypothetical 'interior' of the bride's body.
38. *M.D.N.P.L.G.*, no. 66, pp. 104–5; *M.D. Escritos*, p. 54.
39. Many of these forms of entertainment, in fact, consisted of demonstrations of balancing acts involving everyday utensils (forks, bottles, pencils, ladles, plates, etc.). Their illustration brings to mind the things hanging on the left-hand side of the *Mariée*. We must not ignore the influence of such a book on the genesis of the Munich picture and its ultimate adaptation in the *Large Glass*. See 'Tom Tir', *La Science amusante*, 'first series', esp. pp. 9, 11, 13, 17, 19, 23, 25, 27, 29, 31. The 'second' and 'third series' also show several experiments which might have been used by Duchamp.
40. The roots of the shaft are in the 'magneto-desire', clear proof that this *shaft* is the axle which transmits the driving force, as in normal mechanical arrangements.
41. Clair, *Duchamp et la photographie*, p. 46.
42. I do not accept the normal translation of the word *pendu* as 'hanged' (i.e., 'executed'), since I cannot find any justification for such an interpretation in Duchamp's notes.
43. *M.D.N.*, nos 144, 152. The latter specifies that the fan communicates with the movement of the gravity regulator.
44. *M.D.N.P.L.G.*, no. 74, pp. 118–21. What Duchamp describes here is a fantasy about the possibility of illustrating the problems of n-dimensional geometry, something which preoccupied him a great deal during the years (1912–15) of speculation which led up to the *Large Glass*. It is possible that it is not a 'project' for the work but an analogically connected independent idea.
45. This is J. Clair's thesis, which recalls a comparison in the *Roman de Renart* and popular French speech. See 'Villon: Mariage, hasard et pendaison', in *M.D.A.*, p. 201.
46. 'Cet angle exprimera le: "du coin de l'oeil de la mariée"' (*M.D.N.*, no. 152). In this same note, it says that the angle is to be 22.5 degrees, which does not coincide with the 35 or 40 degrees mentioned in the 'project' for the *Green Box* (see *M.D.N.P.L.G.*, no. 71, pp. 114–15). This all seems rather confusing to me, and it is obvious from the discrepancies already pointed out that it was not all that clear to Duchamp either. I doubt that it is a reference to the angle between the base of the hemisphere and the glass plane, or to the position of the lower rod in comparison with the vertical edge of the picture: the female pendant, effectively, inclines towards the left, both in the initial drawings and in the definitive version (it forms an angle of 75 degrees from the horizontal, or 15 degrees from the vertical). We may obtain the full description of the 'female pendant' from the Notes already referred to (which largely coincide, apart from the question of the angle in the upper part).
47. *M.D.N.P.L.G.*, no. 72, pp. 116–17; also *M.D.N.*, no. 105. The technical term 'housing' seems appropriate to describe Duchamp's mechanical ideas.
48. *M.D. Escritos*, p. 56 (*Green Box*); also *M.D.N.*, no. 105.
49. *M.D.N.*, nos 152 (p. 4a), 146.
50. *M.D.N.P.L.G.*, no. 70, pp. 112–13.
51. *Ibid.*, no. 70, pp. 110–11.
52. *M.D. Escritos*, p. 53.
53. *M.D.N.P.L.G.*, no. 70, pp. 112–13; *M.D.N.*, no. 106.
54. See *Catálogo general ilustrado de Pablo Hartmann*, p. 240.

- This was a leading multinational company in the field of medical technology with three branches in Germany in addition to those in Spain, as well as offices in Austria, Italy, France, England and the United States.
55. *M.D.N.*, no. 144.
 56. *M.D.N.P.L.G.*, no. 70, pp. 110–13.
 57. *M.D.N.*, no. 152 (p. 4a).
 58. *M.D.N.P.L.G.*, no. 90, pp. 140–41. Virtually the same is no. 89, pp. 138–41.
 59. *M.D. Escritos*, p. 54.
 60. *M.D.N.*, no. 102.
 61. *Ibid.*, no. 144.
 62. Roché, 'Souvenirs sur Marcel Duchamp', in Lebel, *Sur Marcel Duchamp*, p. 81. W. Dorstel pointed out the similarity between the Munich water-colour in *Vièrge no. 2* and the head of a praying mantis. See *Augepunkt, Lichtquelle und Scheidewand* (Colonia, 1989), pls 41, 41.1.
 63. Lebel, *Sur Marcel Duchamp*, pp. 72–3, n. 2.
 64. *Ibid.*, p. 72; Paz, *Apariencia desnuda*, p. 41.
 65. See William L. Pressley, 'The Praying Mantis in Surrealist Art', *Art Bulletin* (December 1973), pp. 600–615; also Ramírez, 'Dalí: lo crudo y lo podrido', pp. 58–111.
 66. De Pawlowsky, *Voyage au pays de la quatrième dimension*, p. 231.
 67. *Entretiens* . . . , p. 204.
 68. For the evolution and implications of bee-keeping, see Philippe Marchenay, *L'Homme et l'abeille* (Paris, 1979), and Lucien Adam, *L'Apiculture à travers les âges* (Aurillac, 1985). For the echoes of bee-keeping in the history of modern architecture, see J. A. Ramírez, 'La metáfora apícola en la arquitectura moderna: Gaudí', in *Homenaje al profesor Antonio Bonet Correa* (Madrid, 1993).
 69. See, for example, the famous description by J. H. Fabre in *Mœurs des Insects* (modern edn, 1988), pp. 71–3.
 70. *Entretiens* . . . , p. 62.
 71. *Ibid.*, p. 118.
 72. *M.D.N.*, no. 104.
 73. *M.D. Escritos*, p. 205.
 74. *Ibid.*, p. 53.
 75. Included in full, although for reasons different from our own, in *M.D. Notes* . . . , pp. 46–7; very similar in *M.D.N.*, no. 185.
 76. A. Jarry, *Gestes et opinions*, pp. 21, 22. The last quotation was taken from the *Dictionnaire abrégé de surréalisme* as an explanation of 'pataphysics' (p. 20). For the influence of Jarry's ideas on Duchamp, see Steefel, *The Position*, esp. Appendix III.
 77. Duchamp to Jean Mayoux, 8 March 1956, quoted in Gervais, 'Connections of Art and Arrhe', in *T.D.U.M.D.*, p. 409.
 78. 'Stretching the laws of physics and chemistry a little . . .' (*M.D. Escritos*, p. 80). This fragment from the *Green Box* has given rise, since Breton included it in 'Phare de la mariée', to rather simplistic interpretations of Duchamp's thinking.
 79. *M.D. Escritos*, p. 49.
 80. *Ibid.*, p. 49.
 81. *Ibid.*, p. 54.
 82. *M.D.N.*, no. 99. With great clarity also in Note 104: 'As a subtitle: (agricultural machinery) or agricultural, out-of-town apparatus'.
 83. See Ledoux, *Leçons de choses*, p. 75; Coupan, *Machines de culture*, pp. 111, 117 among others; see also P. Diffloth, *Agriculture générale: Le Sol et les labeurs* (Paris, 1906).
 84. *M.D. Escritos*, p. 43.
 85. The metaphor of the chemistry flask seems to stem from suggestions such as: 'put the bride into a bell-jar or transparent cage' (*M.D.N.*, no. 68).
 86. In an ancient treatise on chemistry, it is defined as follows: 'It is said that phosphamine is produced when the brain tissue of corpses decomposes, and phosphamine is also thought to be responsible for the *ignis fatuus* seen in graveyards' (J. Mir, *Compendio de Química* [Madrid, 1912], p. 132). It seems to me that this product might have interesting connotations within the context of the *Large Glass*, since gas is produced, as we know, by certain headless masculine entities.
 87. *M.D.N.*, no. 98.
 88. *M.D. Escritos*, p. 52.
 89. *Ibid.*, p. 52; also *M.D.N.*, no. 155: 'Electric undressing. Artificial sparks'.
 90. 'Perhaps? As the background for the bride . . . bachelors an electric fair which recalls the illuminations of Luna Park Magic City. Garlands of lights against a black background. Arc lamps – Fireworks in the figurative sense – Magical backdrop (*distant*) on which can be seen the bride . . . bachelors' (*M.D.N.*, no. 74). In no. 80, there is something very similar: 'In brief, magical backdrop (*distant*) on which can be seen . . . the *agricultural apparatus*'.
 91. An important fragment of Marinetti's: 'Here we have the sudden elevation, in a prodigy, higher than the ebony *sierras*, sublime Electricity, the unique and divine mother of future humanity, electricity of the body resplendent with living silver, Electricity of a thousand dazzling, violet arms' (from 'Contro la Spagna passatista', originally published in *Prometeo* [June 1911] and included subsequently in *I manifesti del Futurismo* [Florence, 1914], p. 54).

92. *The 'PELTON' Hydraulic Wheel* . . . , p. 3.
93. *Prenières notions*, p. 169. All of the definitions emphasized the mysterious nature of this physical agent and its effect on bodies; another example, also from a text-book from the end of the nineteenth century, states: 'Electricity is also the name given to the unknown force that has its origin in weighty bodies and in objects which can be attracted to each other or repelled in a manner which cannot be explained by other natural forces' (R. Sanjurjo, *Principios elementales de física* [Toledo, 1891], p. 223). Is it not possible to say exactly the same thing about love?
94. Interview with George Heard Hamilton, 1959. See 'Mr Duchamp, If You'd Only Known Jeff Koons Was Coming', *Art Newspaper*, no. 15 (February 1992), p. 13.
95. See *Catálogo general ilustrado de Pablo Hartmann*, p. 173. An interesting book with a wide circulation and useful for understanding what Duchamp might have known about the subject is Federico Illana Sánchez, *Electroterapia y roentgenología* (Barcelona, 1910–20). The illustration on p. 100 is similar to that published in the Hartmann catalogue. Similar ideas (and pictures) appeared in almost all of the popular technical encyclopaedias of the time and in the main European languages. See, for example, *Hawkins Electrical Guide Number Ten* (New York, 1917?), pp. 3, 185ff.
96. From *Harper's Bazaar* (1883). Reproduced in Rudofsky, *Are Clothes Modern?* (Chicago, 1947), p. 119.
97. Advertisement in the first numbers of *Comoedia*, included by Clair in *Le grand fictif*, p. 158.
98. See *The 1902 Edition of the Sears, Roebuck Catalogue*, pp. 447, 475–6.
99. See the advertisement, with explanatory text and brief index, in the *Almanach Hachette 1936*, p. 19.
100. *M.D. Escritos*, p. 33.
101. See *T.C.W.M.D.*, p. 535.
102. See, for example, *The 1902 Edition of the Sears Roebuck Catalogue*. The battery, separated by a few cables from the main apparatus, plus the 'manual' which would be used to interpret and transmit the messages, constituted a unit which is not all that different from the one envisaged by Duchamp for the *Large Glass*, including the explanatory booklet. Rosalind Krauss ('Where's Poppa?', in *T.D.U.M.D.*, p. 441) recalled this technical association when she mentioned the quotation from Helmholtz: 'The nervous system has often been compared with telegraph wires criss-crossing a country and the comparison is apt for illustrating the surprising and important uniqueness of its *modus operandi*' (*Helmholtz on Perception*, eds Richard Warren and Roslyn Warren [New York, 1968], p. 83).
103. Letter dated 4 October 1954 referring to the book by Carrouges and the bride, included in *M.D. Escritos*, p. 201.
104. This is what he said to Sweeney. See *D.D.S.*, p. 179.
105. *M.D.N.*, no. 184.
106. *M.D. Escritos*, p. 45.
107. *M.D.N.*, no. 158.
108. See the three volumes of 'Tom Tit', already quoted; also Bellet, *Beautés et forces de la nature*, pp. 91, 93.
109. *Entretiens* . . . , p. 68.
110. A. Gleizes and J. Metzinger, *Sobre el cubismo* (Murcia, 1986), p. 34.
111. *D.D.S.*, pp. 187–9.
112. Bragdon, *A Primer of Higher Space*, pl. 15.
113. In Duchamp, *Die Schriften*, pp. 265–6.
114. *T.C.W.M.D.*, p. 36, n. 4.
115. *M.D. Notes* . . . , p. 78. Authors of treatises on four-dimensional geometry confirmed that a minimal part of the adjacent spaces existed at the limit or edge of any space (see Bragdon, *A Primer of Higher Space*, pl. 6). So the glass, on account of its transparency, would be the place where the second, third and fourth dimensions would come into contact, although the proportions would be infinitesimal.
116. *M.D. Escritos*, p. 115.
117. The artist admitted to Steefel that he had been thinking of Rembrandt when he painted the *Mariée*, a clear allusion to the *Anatomy Lesson*. See Steefel, *The Position*, p. 146.
118. Sánchez, *Electroterapia*, p. 156. On p. 170, he writes: 'Bear in mind also if the region is undressable or if we have to work through a dressing which we have to respect and which may be made of plaster, silicate, etc.'
119. *M.D.N.*, no. 23.
120. *Ibid.*, no. 189.
121. See Clair, *Duchamp et la photographie*, pp. 21–2. Another childhood friend was Dr Dumouchel, of whom he painted the famous picture showing him with a halo around his hand (illus. 285).
122. The association between X-rays and a vision of the fourth dimension is seen in *A Primer of Higher Space* by Bragdon, as we have seen (illus. 145, 146).
123. *M.D.N.*, no. 252; also in no. 250.
124. *Ibid.*, nos 101, 153.
125. 'Cri cri o carraca de seccionamiento elemental (application of the principle of elemental parallelism)' (*M.D.N.*, no. 166). But the music in the *Large Glass* could be 'hollow' or silent, in the style of the remarkable suggestion in another note: 'Music in a hollow for the deaf. From a certain conventional number of musical notes "hear" the group of those unplayed (repeat)'

- (*M.D.N.*, no. 252 [also 253]).
126. I am using this expression again to refer to the particular brand of Cubism put forward by Duchamp in 1911 and 1912. See J. A. Ramírez, *El arte de los vanguardias* (Madrid, 1991), p. 66.
 127. See the discussion of *Spring* in the appendix.
 128. This, which was Jean Clair's general interpretation in 1975, corresponds, in my opinion, to the first moment of the work's complex gestation period. See Clair, *Le grand fictif*.
 129. In the letter, already mentioned, from Duchamp to Jean Suquet, 25 December 1949.
 130. Speaking of his work on glass, Duchamp said: '... it became very monotonous, it was a transcription, and in the end there was no invention ...' (*Entretiens* ..., p. 119).
 131. I do not believe that there was any reciprocal influence between Goldberg and Duchamp, but the latter must have seen the weird and wonderful contraptions published by the former in periodicals with a wide circulation such as the New York *Evening Mail*. Peter Marzio has written that between 1909 and 1935, Goldberg drew at least one of these joke contraptions per week (*Rube Goldberg: His Life and Work* [New York, 1973], p. 145). It may be that Duchamp, at the beginning of the 1920s, when Goldberg's inventions began to enjoy great popularity, saw little point in separating his project from these simple caricatures intended for the masses. For more on Goldberg, see Clark Kinnaird, *Rube Goldberg vs. the Machine Age: A Retrospective Exhibition of His Work with Memoirs and Annotations* (New York, 1968); *Rube Goldberg: Memorial Exhibition Drawings from the Bancroft Library* (Berkeley, 1971).
 132. See *M.D.T.B.V.*, pp. 304–5.
 133. '1923 back to Paris – Mary Reynolds rue Campagne Im Hotel Istria.' This brief chronology was written on the back of a programme of festival entertainment at Cadaqués (August 1961) kept among the letters Duchamp exchanged with Yvonne Lyon (Getty Centre for the History of Art and Humanities, Los Angeles, 850691).
 134. When the Arensbergs moved to Hollywood, they reluctantly sold the *Large Glass* to Katherine Dreier, since they felt, with just cause, that the work was too fragile for the long journey to the West Coast. The asking price of \$2,000 was paid in instalments, the last on 5 August 1925 (according to letters from Dreier to the Arensbergs, Archive of the Limited Company, Yale University Art Gallery, New Haven, box 1, Arensberg folder).
 135. See *M.D.T.B.V.*, p. 306.
 136. *D.D.S.*, p. 45.
 137. *M.D. Escritos*, p. 155.
 138. *M.D. Notes* ..., pp. 7, 83.
 139. Jean Suquet has said that the *Large Glass* represents the brief instant which precedes the advance of the sledge with the subsequent opening of the scissors and the fall of the mobile which causes the explosions, etc. (see 'Possible', in *T.D.U.M.D.*, pp. 109–10). This may have been so in what we have called the various stages of post-Cubism and Dadaism, but not the final phase: Duchamp himself emphasized what was to be considered as *action* in his work when he said to Katherine Dreier, at the end of the 1940s, that the *Large Glass* was not a painting but 'an organization of kinetic elements, an expression of time and space through an abstract representation of movement' (quoted in Jean, *The History of Surrealist Painting*, p. 99).
 140. *M.D. Escritos*, p. 38.
 141. Roché, 'Souvenirs sur Marcel Duchamp', in Lebel, *Sur Marcel Duchamp*, p. 80.
 142. See *Catalogue of W. F. Stanley & Co.* pp. 262–3; also *The A. Lietz Company*, p. 364. These tables consisted of a flat glass top (usually horizontal); light could be projected from below using a mirror as a reflector, or by means of a few bulbs fitted to a semi-cylindrical panel. The image on the glass again suggests the idea of transparency, and as for the light, remember Duchamp's idea of placing the *Large Glass* in front of an 'electric' background.
 143. See *Opposition et cases conjuguées sont reconciliées par Duchamp and Halberstadt* (Paris and Brussels, 1932). This book is normally seen as a technical treatise on chess, but it also has much to do with Duchamp's other artistic works.
 144. In another note: 'The picture will be done on 2 large panes of glass measuring 1.30 x 1.40m. approx. with one pane on top of the other (can be dismantled)' (*M.D.N.*, no. 80).
 145. Although Adcock interpreted the 'delay' as being associated with photography (*M.D. Notes* ..., p. 13ff), it seems more plausible to me to link it with sexual activity. Some notes suggest that this idea was possibly influenced by the fear of venereal disease: '1. intention 2. fear 3. desire' (*M.D.N.*, no. 163; very similar are Notes 161, 162); 'I'm infected, you're infected, the seat's infected thanks to a venereal coccyx with nothing venerable about it. Rose' (*ibid.*, no. 247). This same idea occurred to Dalí (*Hidden Faces*, 1941) when he coined the term 'cledalism' for the unexplained delay in physical contact between Solange de Cleda and the count of Grandsailles. It seems obvious that delay,

thanks to the contact and breaking of the glass, was not a Daliesque code for perversion in the *Large Glass*.

146. 'As Duchamp remarked to me in 1956, the cracks brought the glass into this world. When asked where it had been before, he threw up his hands and laughed' (Steeffel, *The Position*, p. 22).
147. Suquet believed that the 1934 version of the *Green Box* was an immediate response to finding out that the *Large Glass* had been broken ('Possible', in *T.D.U.M.D.*, p. 86). I therefore think that the reworking of this work in Surrealist code would have passed through three basic stages: selection of the original notes and refining in the *Green Box* (1931-4; illus. 184), the appearance of Breton's article 'Phare de la mariée' (winter 1935), and the restoration and 'positive' acceptance of the breakage of the glass (1936).
148. Breton 'Phare de la mariée', pp. 45-9.
149. *Dictionnaire abrégé de surréalisme*, p. 13.

4. IN THE ORBIT OF *ETANT DONNÉS*

1. Michael Moses, the student who took it upon himself to reassemble the pieces of the original work (Yale University Art Gallery, New Haven), pointed out in a brief manuscript how different types of spiral were formed depending on the speed of the machine; see *M.D.C.R.*, no. 125, pp. 98-100.
2. Man Ray, *Autoportrait* (Paris, 1964), p. 319.
3. See *T.C.W.M.D.*, no. 286, p. 499.
4. *Ibid.*, no. 294, p. 499.
5. See *Premières notions*, p. 197.
6. See Bellet, *Beautés et forces de la nature*, p. 75; 'Tom Tit', *La Science amusante*, 'second series', p. 89; 'third series', p. 139.
7. Ogden N. Rood, *Modern Chromatics with Applications to Art and Industry* (New York, 1879; facsimile, New York, 1973), esp. chap. xiv, ill. pp. 212, 268.
8. The box containing the six double rotating discs was accompanied by a piece of transparent paper with instructions in French: 'Make the optical discs rotate slowly *rotorelief*... on the turntable of a record player: the image in relief will appear immediately. In order to obtain the maximum effect of relief, look with one eye through the viewer, holding it at a distance.' The initial price was 15 francs for the series of six discs, or 2.50 each.
9. Roché said that Duchamp's little stand was 'frappé d'invisibilité' and that '... none of the visitors in search of practical inventions stayed: a simple glance was enough to tell them that, between the machine for compressing and burning rubbish, on the left, and the

rapid vegetable cutter on the right, this object was of no practical use' (Lebel, *Sur Marcel Duchamp*, p. 84). It seems to me, however, that Duchamp wanted somehow to put into practice the technical parodies which Rube Goldberg created with his sketches of useless machines.

10. Mentioned by Duchamp himself in his letters to Jean Doucet, who was one of the small 'shareholders'. See *T.C.W.M.D.*, no. 280, pp. 490-91. In another letter to Picabia (1924), he wrote: 'You can see that I have not given up being a painter, now I paint about chance' (*M.D. Escritos*, p. 229).
11. Gervais, 'Connections of Art and Arrhe', p. 408.
12. This was admitted by A. Schwarz, who quoted Freud: 'A passion for gambling is equivalent to the ancient compulsion to masturbate' (*T.C.W.M.D.*, p. 491).
13. Camfield and Martin, *Tabu Dada*, p. 8.
14. One of the Delauney windows was published in *Dada 2* (Zurich) (December 1917). Such works gave rise to the famous poem 'Les Fenêtres' by Apollinaire, a favourite of the artist, who stated in a letter to Madeleine Pagès: 'Windows lead to a completely new appreciation of beauty whose influence I have not found again' (quoted in Dachy, *Journal du mouvement dada*, p. 27).
15. *M.D.S.*, pp. 105-6; *M.D. Escritos*, p. 89.
16. *M.D.N.*, no. 171.
17. *Entretiens*..., p. 121.
18. J. Clair pointed out that the guillotine is commonly known in France as 'the widow', adding: 'We must remember, then, this window of Duchamp's which, since it is not a guillotine, is called Fresh widow' (see 'Villon: Mariage, hazard et pendaison', in *M.D.A.*, p. 202).
19. Apollinaire, *Poesía completa* (Barcelona, 1981), vol. III, p. 134.
20. *T.C.W.M.D.*, p. 480.
21. *M.D.N.P.L.G.*, no. 124, pp. 184-5.
22. *T.C.W.M.D.*, p. 496.
23. Statements to Michel Sanouillet, 'Dans l'atelier de Marcel Duchamp', *Les nouvelles littéraires* (Paris), no. 1424 (16 December 1954), p. 5.
24. *Délice et rêves dans la 'Gradiva' de Jensen, traduit de l'allemand par Marie Bonaparte, précédé du texte de 'Gradiva' traduit par E. Zauck et G. Sadoul* (Paris, 1931). The latter translator was an active member of the Surrealist movement.
25. *D.D.S.*, p. 184.
26. The richness and hazards of this work are now well known thanks to the recent monograph by Bonk, *M.D.T.B.V.*
27. This photograph appeared on 7 September 1942 and

- was reproduced in *M.D.T.B.V.*, pp. 8, 166.
28. See the facsimile reproduction of the *Instruction Manual* to *Etant donnés* published in 1987 by the Philadelphia Museum of Art.
 29. According to the notes of F. Kiesler; included in *M.D.T.B.V.*, p. 166.
 30. In the boxes put together after 1966, the number of objects is 81 (*M.D.T.B.V.*, pp. 23, 253–6). By that time, the original significance of the number 69 must have been forgotten.
 31. Breton, 'Le Phare de la mariée', p. 87.
 32. See 'Recherches sur la sexualité part d'objectivité, déterminations individuelles, degré de conscience', *La Révolution surréaliste*, no. 11 (15 March 1928), p. 39.
 33. Another amusing box conceived by Duchamp was the *Boîte Alerte Missives Lascives*, 'shown' in the retrospective exhibition of his work at the Pasadena Art Museum (8 October–9 November 1963): a kind of cardboard letter-box (green, of course) containing various texts, photos and drawings conceived or selected by other artists from the Surrealist camp. They were all obscene.
 34. *Entretiens* . . . , p. 118.
 35. When he was creating Rose Sélavy, it is probable that Duchamp still vividly remembered Louise Lalanne, the pseudonym with which Apollinaire signed a section on feminine literature published in *Les Marges* (1909). In order to bring the artificially priggish series to an end, the journal announced the following year that Miss Lalanne had been raped by an army officer and then revealed the true masculine identity of the author (see Shattuck, *La época de los banquetes*, p. 226). The surname may be connected with one of the Dadaist obsessions, as stated by Jean Arp in an article translated from French into English by Duchamp himself: 'Dada is life. Dada is that which changes . . . Dada is the life which will be transformed tomorrow and behave in a manner which is very different from the way it behaves today' (from the catalogue and billboard for the exhibition entitled *Dada 1916–1923*, Sidney Janis Gallery, New York, 1953).
 36. See Francis Naumann, 'Marcel Duchamp: A Reconciliation of Opposites', in *M.D.A.C.*, pp. 21–2.
 37. Intervention by Dennis Young during a discussion of the Molly Nesbit paper, in *T.D.U.M.D.*, p. 387.
 38. See the observations by F. Naumann in his discussion of the Carol James paper in *T.D.U.M.D.*, p. 297.
 39. 'J'ai cependant été passer dix jours à Syracuse (N.Y.) pour un tournoi d'échecs et j'ai compris comme la verdure est une bonne chose pur les "Roses"' (Letter to Yvonne Crotti, Archives, Getty Center for the History of Art and Humanities, Los Angeles, 850691).
 40. See Molly Nesbit, 'The Language of Industry', in *T.D.U.M.D.*, pp. 351–94.
 41. Denis de Rougement, 'Marcel Duchamp, mine de rien', *Preuves*, xviii/204 (February 1968), pp. 46–7.
 42. As, for example, in some notes: 'A painting on glass looked at from the unpainted side creates an infrafine'; 'Magnifying glass for touch (infrafine) . . . The infrafine is diaphanous and sometimes transparent'; 'Transparency imitating supposing expecting an infrafine' (*M.D.N.*, nos 15, 32, 39).
 43. See Bragdon, *A Primer of Higher Space*, pl. 6.
 44. *D.D.S.*, p. 154.
 45. In the Philadelphia Museum (13–1972–15C), there is, together with a copy of the catalogue which was owned by Duchamp, a model of the breast inside a round green sweet-box made of silver. Golden letters spell out the inscription *Mon. Grelier H. Lyon, médaille d'Or. Nevers 1902 le Négus Nevers*. The breast does not appear to be made of rubber but of some sort of coloured confectionery moulded from a real model, and I suppose it was also edible. I believe, therefore, that Duchamp was thinking of working on 'edible' breasts instead of those which he made 'to be touched' (or at the same time).
 46. Other later works (close to *Etant donnés*), such as the *Morceaux choisis d'après Ingres* (1968; illus. 231), the basic theme of which is sexual tactility, are connected to *Prière de toucher*.
 47. *M.D. Escritos*, p. 40.
 48. *M.D.N.*, no. 176, also in no. 187. First published with the title 'Transformer' (see *M.D. Escritos*, p. 231).
 49. 'Parmi nos articles de quincaillerie paresseuse, nous recommandons un robinet qui s'arrête de couler quand on ne l'écoute pas' (see *M.D.T.B.V.*, p. 119; *D.D.S.*, p. 154).
 50. *Entretiens* . . . , p. 135. The importance of air led him to speculate, jokingly, on the possibility of making people pay for this essential element, 'a society in which the individual has to pay for the air he breathes (air cutters); incarceration and rarefied air for those who do not pay, and simple asphyxia when necessary (cut off the air)' (*M.D. Escritos*, p. 40).
 51. *Entretiens* . . . , p. 143.
 52. In 1927, Duchamp married the rich heiress Lydie Sarazin-Levassor, but the marriage lasted only a few months. Duchamp commented that the experience had helped him to understand that marriage was 'something which annoyed me. In truth, I was more of a bachelor than I thought' (*Entretiens* . . . , p. 142).
 53. *Entretiens* . . . , pp. 155–6.

5. 'GIVEN, IN THE DARKNESS . . .'
(LOVE AND DEATH)

1. *Entretiens* . . . , p. 147.
2. See the facsimile edition of this album (Philadelphia, 1987).
3. It measures 3.41 by 3.48 metres. It does not appear that Duchamp left any indication about the characteristics of the voyeur's ambit.
4. William Copley spoke of the 'branches of autumn on which the nude is supported'; see 'The New Piece', in *Marcel Duchamp in Perspective*, p. 114.
5. Duchamp described it as a 'sort of black sky between bricks and a door' (Preface to the *Manual*, sixth step).
6. *Manual*, sixth step, p. 19.
7. Duchamp wrote about these panels when describing the fifth step and showed a photograph (*Manual*, p. 17) in which, in place of the lowered upper arch, we see a horizontal lintel; the shape of the simulated bricks is very different from that of the bricks in the Philadelphia Museum (illus. 209). I suppose that this change is justified by the final version of the *Manual*, written on a loose leaf at the end: 'Depending on where the ensemble is finally placed, the three walls can be changed and adapted more to the environment.' The frame adopted in Philadelphia was inspired by Catalan architecture as seen in Anne d'Harnoncourt's afterword to *Instruction Manual*, p. 60. This photograph is included among the Duchamp papers (Philadelphia Museum of Art, 13-1972-9, folder 3), and d'Harnoncourt herself has confirmed that the artist, before he died, made arrangements for the bricks to be brought from Spain and for the frame with the lowered arch to be built with them. (See also *M.D. [PMA & MOMA]*, p. 31). The 'vinyl' panels are in the Philadelphia Museum's collection.
8. On this question, see Juan Antonio Ramírez, *La arquitectura en el cine: Hollywood, la Edad de Oro*, ed. Hermann Blume (Madrid, 1986).
9. *Manual*, fifth step, p. 16.
10. In a photograph of p. 11 of the *Manual*, this row is missing (it was drawn with a biro), but it does exist, although shortened, in the image which Duchamp placed on the right. Everything seems to indicate that he chose 69 bricks (and that this number was a fortunate accident), and that he then did not wish to alter this 'harmonic' numbering when he was obliged to add another row to be sure of the aesthetic effects of the hole.
11. *Manual*, pp. 10, 11.
12. We have already said that he left the bricks ready for the illusory door frame to be replaced by a 'real' one.
13. A sketch (or simple copy) must be the silk-screen print of the landscape on cloth, in black and white, in the Philadelphia Museum (13-1972-2). The work measures 689 by 936 millimetres, is the property of Mme Duchamp and shows the different parts of the landscape, positioned like drop-curtains in the construction of *Etant donnés*.
14. Among the pages of the *Manual* preserved in the Philadelphia Museum is an invoice from Brevet Products Corp., dated 30 December 1963; Duchamp paid \$8.50 for a 'w3L1-620B-84 Motor', acquiring it from a branch of said company whose address was 28 West 10 Street, very close to the place where he was working on *Etant donnés*. I believe that this provides us with the date of the final form of the landscape and waterfall.
15. *Manual*, eleventh step, p. 30.
16. *Ibid.*, p. 32.
17. It has been stated that this is a pig's skin (Suquet, 'Possible', in *T.D.U.M.D.*, pp. 130-31), but d'Harnoncourt does not think that this is probable. She confirmed to me (interview, 28 April 1992) that the little scratches on the body (leather) of the dummy have always been there. It does not appear to me that the groin is covered with skin; I believe that this region is made of nothing more than painted plaster. No thorough analysis of the material used in the construction of this important work has been authorized to date: its extreme fragility has made it necessary to create a special microclimate for it. Protected by a glass cage (it is not even possible to insert a finger or pass a tiny message through the holes in the door), this figure is, from a physical point of view, totally inaccessible. The demands of museum science have, no doubt, interfered with the construction's original significance . . .
18. In *M.D. (PMA & MOMA)*, p. 30, it states that the *Manual* was written in 1967.
19. *Manual*, p. 45.
20. *Ibid.*, thirteenth step, p. 36.
21. Another invoice, from 'Century Lights', preserved in the *Instruction Manual* in the Philadelphia Museum, shows that Duchamp paid \$54.29 for these lamps. It bears the dates 102264 and 113064 (22 October and 30 November 1964), which may indicate when he placed the order and when he received them.
22. *Manual*, seventh step, p. 20.
23. 'Approximation démontable (par approximation j'entends une marge d'ad libitum dans le démontage et remontage' (*Manual*, on the horizontal strip of paper which acts as a preface).

24. *T.C.W.M.D.*, p. 445. In France, chemists' shops used to display red- and green-coloured bottles in their windows.
25. The system consisted of printing two stereoscopic views of the same object, one on top of the other, in complementary colours (green and red). When it was viewed through glasses with one red and one green lens, the image appeared in relief. For more details, see Clair, *Duchamp et la photographie*, pp. 72–4.
26. *T.C.W.M.D.*, p. 579. Duchamp was referring to the book *Les Anaglyphes géométriques* (Paris, 1912).
27. *T.C.W.M.D.*, p. 568.
28. *M.D.N.*, no. 184. The text, written on telegram paper in Buenos Aires, forms part of the speculations into angles of observation and optical problems which concerned him in the last phase of the *Large Glass* before he abandoned it in 1922.
29. Schwarz, *T.C.W.M.D.*, p. 579.
30. There is an interesting literary source for all this in the poem which Apollinaire wrote to his mistress Lou on 23 June 1915: 'Il me faudrait un petit noc/car j'ai faim d'amour comme un ogre/Et je ne trouve qu'un faucon' (quoted in Samaltanos, *Apollinaire, Catalyst*, p. 102; also in *M.D.C.R.*, p. 147).
31. See Ramírez, 'Dalí: lo crudo y lo podrido'.
32. The connection between *Torture-morte* and Mantegna's *Dead Christ* was first suggested in George H. Bauer, 'Duchamp's Ubiquitous Puns', in *M.D.A.C.*, pp. 129–30.
33. 'Before [Courbet], painting had other functions. It could be religious, philosophical or moral' (*Eutretiens* . . . , p. 74).
34. See the discussion of this question with reference to Courbet in Michael Fried, *Courbet's Realism* (Chicago, 1990).
35. The addition of the bird (which looks more like a parrot than a falcon, despite what Duchamp said) might have been inspired by another of Courbet's works, *Woman with a Parrot* (1866).
36. For this work, see Theodore Reff, *Manet: Olympia* (London, 1976).
37. Man Ray seems to have been very aware of the erotic implications of the veiled (or absent) face. In the catalogue edited by Breton and Duchamp for the *Exhibition internationale du surréalisme 1959–1960* (Daniel Cordier Gallery, Paris), he expressed delight that the head remains uncovered in our society, despite its 'apertures' and undeniably erotic invitations. Man Ray finished his text in the following manner: 'Let us demand, above all, that every woman should have a head!' (pp. 14–15).
38. See *La Révolution surréaliste*, no. 12 (15 December 1929), p. 73.
39. Max Ernst, 'Les Mystères de la forêt', *Minotaure*, no. 5 (May 1934), pp. 6–7.
40. *Le Couple* was reproduced in *Minotaure*, nos 12–13 (1939), p. 39.
41. *Minotaure*, no. 10 (winter 1937), p. 32.
42. 'D'ailleurs c'est toujours les autres qui meurent.' See the photograph of same in *T.D.U.M.D.*, p. 479. Duchamp also said to Hans Richter: 'Death? There's no such thing. When we cease to be conscious of the world, it simply comes to an end' (*Marcel Duchamp in Perspective*, p. 148).
43. How the posthumous voyeurs differ is unimportant. Misunderstanding for Duchamp was a precondition of survival, as can be seen in a phrase like the following: 'It is precisely because Rembrandt has none of the characteristics which posterity has attributed to him that he has survived' (quoted in Ulf Linde, 'Laforque: Tout n'est que célibat', in *M.D.A.*, p. 111).
44. For Bellmer, *Leib* (body) reads like *Beil* (axe). See J. F. Rabain, 'Démembrement de la figure chez Bellmer, Zürn, Schreber', *Cahiers confrontation*, no. 4 (Autumn 1980), p. 13; see also Ramírez, 'Dalí: lo crudo y lo podrido', pp. 82–3. It is probably necessary to investigate more closely the relationship between Bataille and Duchamp, but I feel that *Etant donné*s contains many of the connections between eroticism and death that the writer thought of (or invented). See Georges Bataille, *Les Larmes d'Eros* (Paris, 1961).
45. *Minotaure*, no. 6 (5 December 1934), the front cover of which was designed by Duchamp, contained seventeen photographs of Bellmer's doll (pp. 30–31). Another work of the same type was reproduced in no. 10 (winter 1937). We should not forget that this copy also contained Duchamp's 'Rendez-vous du 6 février 1916' and a reproduction of Delvaux's *Le Viol*. Another of the Bellmer dolls was reproduced in the *Boîte Alerte Missives Lascives* created for the 1963 Pasadena exhibition.
46. Albrecht Dürer, *De symmetria humanorum corporum* (Nuremberg, 1532). This source has been pointed out by Adcock (*M.D. Notes* . . . , p. 135, pl. 69); Jean Clair sees a link between it and Duchamp's preoccupation with perspective ('Marcel Duchamp et la tradition des perspecteurs', in *M.D.A.*, p. 159).
47. See *La Révolution surréaliste*, no. 12 (15 December 1929), pp. 29 (entire picture), 64 (voyeur section).
48. *VVV*, nos 2–3 (March 1943). Duchamp's design consisted of a woman's torso, truncated and stuffed with wire netting. The idea of perforating the cover was also seen in the pinholes of the *First Papers of Surrealism*

- (1942) and in the face on the cover of *Young Cherry Trees Secured Against Hares* by Breton (1946).
49. The Duchampian qualities of this work have recently been highlighted by Herbert Molderings, in *Marcel Duchamp* (Frankfurt, 1983), pp. 85–6, and in ‘Objects of Modern Skepticism’ (in *T.D.U.M.D.*, pp. 257–61).
 50. As stated by Georges Huguét. Other definitions contained in the same epigraph are by Breton and Philippe Soupault (‘The most magnificent doors are those behind which one reads “open in the name of the king”’), Paul Eluard (‘The door was like a saw’) and Saint-Pol Roux. *Dictionnaire abrégé du surréalisme*, p. 21. They all appear to me to be connected, in one way or another, with the door as conceived by Duchamp. The intense luminosity of the ‘interior’ can also be associated with the dioramas in natural history museums; does the motionless figure seen by the voyeur not appear to be stuffed?
 51. See *M.D. Notes* . . . , fig. 133.
 52. *M.D.N.*, no. 115 (also in no. 118).
 53. Reproduced in d’Harnoncourt and Hopps, *Etant donnés*, p. 60.
 54. The female figure is a sort of transparent bas-relief: through the paraffin wax which moulds it (with perforations reminiscent of the study on transparent Perspex [illus. 267]), we can see the drawing on paper. This transparency of the body accentuates its relationship with the *Large Glass*.
 55. We consulted the Spanish edition, *Nuevo folleto de las turbinas James Lefeld, normales CASCADA y reducidas* . . . (Springfield, OH, 1896), p. 28.
 56. Published by Moure in the catalogue for the 1984 Duchamp exhibition, p. 166.
 57. See *M.D. T.B.V.*, pp. 282–3.
 58. I am indebted for this anthropomorphic identification to my research assistant at the Getty Center, Claudia Bohn-Spector, who drew my attention to the possibility that the ‘guilty’ landscape may not be as abstract as I had thought.
 59. See d’Harnoncourt and Hopps, *Etant donnés*, p. 61.
 60. He told Cabanne that he was sexually ‘normal’ to ‘the highest degree’. We also have testimony such as that of Man Ray and have noted that, according to Roché, Marcel was fond of women and selected them ‘with fantasy and method’ (‘Souvenirs sur Marcel Duchamp’). See Lebel, *Sur Marcel Duchamp*, p. 85.
 61. See *M.D.C.R.*, no. 150, p. 125. See also (for the sketches mentioned below) nos 151, 152.
 62. *T.C.W.M.D.*, no. 330, p. 524.
 63. Mentioned by H.-P. Roché, who quoted the interviews with Sweeney in Lebel, *Sur Marcel Duchamp*, p. 85.
 64. F.T. Marinetti, ‘El desprecio a la mujer’, in *Manifestos y textos futuristas*, p. 65.
 65. Published as a source for *Etant donnés* in *M.D. Notes* . . . , pl. 135.
 66. Also referred to in *M.D. Notes* . . . , p. 170.
 67. Referred to in d’Harnoncourt and Hopps, *Etant donnés*, p. 61, and in *M.D. Notes* . . . , pl. 134.
 68. In the *Manual*, the object held by the woman is termed ‘le bec Auer’.
 69. In the first *Almanach du Père Ubu* (1899). Included by Shattuck in *La época de los banquetes*, p. 182.
 70. Lebel has said that on one occasion, around 1960, he uttered the name Duchamp in front of Picasso, who replied, jokingly, ‘I don’t want to hear his name. He has spent a lifetime making fun of me’ (see ‘Duchamp au musée’, in *M.D.A.*, p. 120).
 71. *Manual*, seventh step, p. 20. It is interesting to compare this with the light, also shining from directly above, in *Fountain* as it appears in the famous photograph by Stieglitz (illus. 40). See Camfield, *Marcel Duchamp Fountain*, p. 55.
 72. This precedent is mentioned in the *catalogue raisonné* for the exhibition at the Pompidou Centre; see nos 146, 151; pp. 123, 125. I do not agree, however, that *Etant donnés* should be considered, as Jean Clair believes, as a ‘Morceau choisi’ similar to *The Lady in White Stockings* (p. 127), since it is evident that the sources for the Philadelphia montage are numerous (there is no exclusive reference to Courbet) and its purpose much more complex than the engravings of 1967–8. *The Origin of the World* (Musée d’Orsay, Paris) is a mythical work which was long believed to be lost. It appears that one of its last owners was the psychoanalyst Jacques Lacan, who kept this a closely guarded secret. See Fried, *Courbet’s Realism*. Proof that Duchamp was aware of Courbet’s work is found in the anonymous story of Edelmira B and Marcelino B related in one of the pamphlets from the *Boîte Alerie*: the crude photograph of a woman whose vagina has been sewn up by her sadistic lover, entitled ‘The Chains of Chastity’, is a visual pastiche of *The Origin of the World*.
 73. This precedent was also referred to in J. Clair, ‘Sexe et topologie’, in *M.D.A.*, pp. 52–3.
 74. See *T.D.U.M.D.*, p. 341. Let us remember, in this connection, that one of the fluorescent tubes which illuminate the centre of the nude’s room, the one closest to the dummy, has a ‘pinkish’ colour. See *Manual*, seventh step, p. 20.
 75. See 391, no. 8 (1919), p. 63.
 76. Jean-François Lyotard, *Duchamp’s TRANS/formers*

- (Venice, CA, 1990), p. 175.
77. This reproduction illustrated Pierre Mabille's article 'L'Oeil du peintre', in which he wrote of the artist's premonitions concerning the loss of his own eye. Here, we have an explicit affirmation of the feminine symbolism connected with the organ of vision. See *Minotaure*, nos 12–13 (May 1939), p. 55.
 78. See Thierry de Duve, *Résonances du ready-made: Duchamp entre avant-garde et tradition* (Nîmes, 1989), p. 38.
 79. See Bauer, 'Duchamp's Ubiquitous Puns', in *M.D.A.C.*, p. 129.
 80. See B. Klüver and J. Martin, *Kiki's Paris: Artists and Lovers, 1900–1930* (New York, 1989). The absence of pubic hair on Kiki was mentioned by Man Ray in *Autoportrait*, pp. 135ff.
 81. Man Ray, *Autoportrait*, p. 234. The information is summarized (and completed) by Clair, in *M.D.C.R.*, no. 151, p. 127.
 82. This story was told by Duchamp himself, and when he remembered that Bronya and René Clair had married some months afterwards he added: 'I am a "match-maker", you see, a matchmaker!' (*Entretiens* . . . , p. 125).
 83. Salvador Dalí, 'Première loi morphologique sur le poils dans les structures molles', *Minotaure*, no. 9 (October 1936), p. 61.
 84. Another mould was the *Objet-Dard* (1951), which seems to be a deep imprint of female sexual organs, connected by its curved shape to the linguistic ready-made on 'l'habite en spirale' (see Clair, 'Sexe et topologie', in *M.D.A.*, p. 56). Schwarz was astute enough to spot the play on words between 'objet-dart' (phallic) and 'objet-d'art'. See *T.C.W.M.D.*, p. 526. Nor should we forget the humorous aspect of the whole question, or the permanent example of Jarry, about whom an anecdote was told which Duchamp must have heard: the writer had a large Japanese phallus which Félicien Rops had given him as a present. When a certain lady of letters, shocked, asked him if it was a plaster cast, Jarry answered 'No, it's a miniature.' See Shattuck, *La época de los banquetes*, pp. 182–3.
 85. 'I want to grasp things with my mind the way the penis is grasped by the vagina' (Duchamp in September 1956). See Steefel, *The Position*, p. 312.
 86. *M.D. Escritos*, p. 207.
 87. *Entretiens* . . . , p. 169.
 88. Carla Gottlieb has also drawn our attention to the homophony between 'du champ' and the artist's surname, but in the context of the *Large Glass* as an agricultural machine. See *The Window in Art: From the Window of God to the Vanity of Man: A Survey of Window Symbolism in Western Painting* (New York, 1981), p. 351.
 89. *Entretiens* . . . , p. 143.
 90. Dore Ashton, 'An Interview with Marcel Duchamp', *Studio International*, CLXXI/878 (June 1966), p. 245. Duchamp repeated the same idea on many occasions, especially in his famous lecture of 1957, 'The Creative Process' (*D.D.S.*, pp. 187–9). The date of this text is interesting as it coincides with the moment when, we believe, he was defining the lay-out of *Etant donnés*.
 91. Philippe Murray has suggested that the figure in *Etant donnés* may refer to a criminal act: 'Et ce bras surréaliste brandissant haut son bec Auer? Rigidité cadavérique, boucherie, sacrifice, dépendaison . . .' (see 'La Religion sexuelle de Marcel Duchamp', *Art Press* [September 1984], p. 7).
 92. Jean Clair believes that the figure is represented post coitum; this would be 'a fallen animal, but also a body descended from a four-dimensional sky to the reality of the three-dimensional universe, visible to our eyes' (*Duchamp et la photographie*, p. 104).
- ## 6. APPENDIX: EARLY DUCHAMP IN 9 REPRESENTATIVE WORKS
1. 'As stupid as a painter' was a popular expression during Duchamp's youth and was mentioned by him on one occasion as an example of what was to be avoided.
 2. See, for a full discussion, John F. Moffitt, 'Marcel Duchamp: Alchemist of the Avant-Garde', in E. Weisberger, ed., *The Spiritual in Art: Abstract Painting 1890–1985* (New York, 1986), pp. 258–9.
 3. Duchamp to the Arensbergs, 22 July 1951, quoted in *M.D.C.R.*, no. 38, p. 34; also in Moure, ed., *Duchamp*, no. 18, p. 97.
 4. Duchamp spoke reproachfully of Apollinaire and Jacob as still working in a Symbolist atmosphere. In 1911–12, when the artistic rupture occurred, he and Francis Picabia felt uncomfortable in the presence of the writers mentioned. See *Entretiens* . . . , pp. 36, 48.
 5. See *T.C.W.M.D.*, pp. 89ff; also 'Duchamp et l'alchimie', in *M.D.A.*, pp. 10–21.
 6. See U. Linde, 'L'Esoterique', in *M.D.A.*, pp. 60–85; John Golding, *Marcel Duchamp: The Bride Stripped Bare by Her Bachelors, Even* (New York, 1972).
 7. The phrase included by Lebel was interpreted by Calvesi as if Duchamp had wished to say that he lacked the great wisdom of alchemy' (*Duchamp invisible* [Rome, 1975], p. 203). J. F. Moffit has accepted this thesis ('Marcel Duchamp: Alchemist . . .', p. 269). In the 1950s, Duchamp, talking to Steefel, denied the

influence of alchemy although he recognized that it was 'in the air' and that he was conscious of its presence (*The Position*, p. 38). Paul Matisse, editor of the posthumous *Notes*, has confirmed that his stepfather Duchamp had no interest in esoteric knowledge ('Marcel Duchamp', *Cahiers du Musée National d'Art Moderne*, no. 3 [January–March 1980], p. 17), and Alexina, in a conversation with Baruchello, said that Duchamp used the expression 'sans le savoir' in the ordinary sense of without being aware of it

(Gianfranco Baruchello and Henry Martin, *Why Duchamp: An Essay on Aesthetic Impact* [New York, 1985], pp. 13–14).

8. Among the artist's photographs and papers housed in the Philadelphia Museum of Art, I have seen several ancient copies of this famous Pre-Raphaelite picture. It seems obvious to me that Duchamp noted the similarity with the *Nude Descending a Staircase*.
9. See Steefel, *The Position*, pp. 128–9.

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