

combustion engine and mechanical transmission] include similar organs and differ among themselves only by often insignificant details and by the placement of these same organs." Such "elemental organs" include "organes de distribution," "organes de direction," and "organes de commande." And, like living beings, the engines of these vehicles require "alimentation," or feeding.⁶⁴ We have come full circle to the automobile, which Mirbeau, Marinetti, and Pawlowski all treated in anthropomorphic terms. It should now be clear that although literary sources such as these would have encouraged Duchamp's interest in the subject, the human-machine analogy was basic to the language of science and technology in this period and that writers like Marinetti and Pawlowski were themselves responding to their larger cultural context.

The "Jura-Paris Road" Project

Duchamp had begun to explore the integration of human and machine forms in his Munich works of summer 1912. About October 20, less than two weeks after returning from Munich, Duchamp accompanied Apollinaire and Picabia on an automobile trip to Gabrielle Buffet's family home in Etival, in the Jura Mountains.⁶⁵ According to her later memoir, the travelers arrived at night in a deluge of rain after what must have been a wild ride in one of Picabia's legendary automobiles.⁶⁶ Given the delight the three shared in humor, puns, and wordplay, one can imagine the witty repartee that took place during the trip to Jura. Its traces, complete with sexual allusions, are undoubtedly present in Duchamp's Jura-Paris Road notes, written during winter 1912.⁶⁷

Until the publication of the final group of Duchamp's notes in 1980, the Jura-Paris Road was known only through a single note in the *Green Box*. The main portion of that note read:

The machine with 5 hearts, the pure child, of nickel and platinum, must dominate the Jura-Paris road.

On the one hand, the chief of the 5 nudes will be ahead of the 4 other nudes towards this Jura-Paris road. On the other hand, the headlight child will be the instrument conquering this Jura-Paris road.

This headlight child could, graphically, be a comet, which would have its tail in front, this tail being an appendage of the headlight child appendage which absorbs by crushing (gold dust, graphically) this Jura-Paris road.

The Jura-Paris road, having to be infinite only humanly, will lose none of its character of infinity in finding a termination at one end in the chief of the 5 nudes, at the other in the headlight-child.

The term "indefinite" seems to me more accurate than infinite. The road will begin in the chief of the 5 nudes. and will not end in the headlight child.

Graphically, this road will tend towards the pure geometrical line without thickness (the meeting of two planes seems to me the only pictorial means to achieve purity)⁶⁸

Duchamp's note concludes by discussing the transformation of the finite "line" of the Jura-Paris road into an "ideal straight line which finds its opening toward the infinite in the headlight child" and, finally, the material to be used in the composition. Although he mentions "size of canvas" in the last line of the note, he also states his interest in new materials: "The pictorial matter of this Jura-Paris road will be *wood* which seems to me like the affective translation of powdered silex."⁶⁹

If the physical form the project was to have taken remains something of a mystery, we learn much more about the iconographical scheme of the work—as well as its title—in the notes Duchamp chose not to publish during his lifetime. In one of these three posthumously published notes, Duchamp begins, "Title. The chief of the 5 nudes extends little by little his power over the Jura-Paris road," and then presents the theme in terms of a military conquest. Of the chief, he writes, "He and the 5 nudes form a tribe for the conquest by speed of this Jura-Paris road."⁷⁰ Another note (fig. 47) provides even more information: here Duchamp discusses the "pictorial translation" of the work and reveals new associations for the "machine-mother" (Virgin Mary) and for the "headlight child" (Jesus, child God).

Out of these rather cryptic notes, it is possible to identify certain of Duchamp's characters as they reflect technology or the human-machine analogies of this period, particularly the female as automobile. The "machine with 5 hearts" is very likely an automobile, the vehicle with the "steel lungs and heart" of Mirbeau and the "beating heart" of Pawlowski.⁷¹ Such comparisons were commonplace in popular literature, as in the "Heart of the Automobile," from *The Book of Wonders* of 1916 (fig. 48).⁷² The number five makes the analogy somewhat more complicated: Is this a five-cylinder engine (rare but extant in this period), or do the "5 hearts" perhaps signify either the engine of the automobile plus the four hearts of the humans driving from Paris (Duchamp, Apollinaire, Picabia, and Victor, Picabia's chauffeur) or the five human hearts on the return trip to Paris, Gabrielle Buffet having joined the travelers?⁷³

The "headlight child," the "pure child, of nickel and platinum," is undoubtedly a modern headlight, capable of projecting a beam into the dark, in contrast to the oil

lamps that had first been used. Duchamp's reference most likely evokes the nickel-plated reflectors and platinum electrodes associated with the new electric headlamps.⁷⁴ "The Lights in Full Blast" (fig. 49), from a 1910 article, is a reminder of the novelty of headlights and night driving—an experience intensified for the Paris-Jura sojourners by a heavy rainstorm.⁷⁵ As a 1911 article in *Outing Magazine* declared, "If you own a car in a small city or in the country, you have doubtless tested the joys of night driving, and already realize how the pleasure of motoring is doubled when even familiar scenes are traversed after sundown."⁷⁶

Duchamp's comparison of the light projected by the headlight child to a "comet, which would have its tail in front," recalls descriptions of searchlights, such as those at the 1881 Exposition Internationale d'Electricité in Paris, whose "beams were thrown like comets' tails in all directions."⁷⁷ Duchamp's version, however, implies a phallic association of this projection from the male headlight child. More original is Duchamp's thinking of the projected headlights as a new kind of line, drawn in space and continually moving through space toward infinity. He identifies the Jura-Paris Road itself with this line, which "in the beginning (in the chief of the 5 nudes) . . . will be very finite in width, thickness, etc., in order, little by little, to become without topological form in coming close to this ideal straight line which finds its opening towards the infinite in the headlight child."⁷⁸

The "chief of the 5 nudes" is the most mysterious of the proposed characters and may well derive from the punning that occurred on the trip. Ulf Linde has suggested that the term "cinq nus" might be a pun on "seins nus," or bare breasts;⁷⁹ because Marinetti had referred to his automobile's "torrid breasts," Duchamp and his fellow travelers might well have played with this Futurist metaphor, augmenting the sexuality of the "machine-mother." This interpretation would also allow the merging of the 5 nudes with the automobile itself, an idea Duchamp describes in one of his posthumously published notes (fig. 47): "The 5 nudes, one the chief, will have to lose, in the picture, the character of multiplicity. They must be a machine of 5 hearts, an immobile machine of 5 hearts." Here, the Futurist theme of sexual union of driver and car is also evoked, for the machine-mother is to "give birth to the headlight," conferring on the chief nude (Duchamp?) the role of Bachelor/husband to the Virgin/Bride or machine-mother. Duchamp's identification of the 5 nudes with 5 hearts also suggests that the nudes might be the four passengers in the car, plus some aspect of the car itself as an extension of the "swift nudes" he had explored earlier.⁸⁰

The headlight child is the "instrument conquering this Jura-Paris road," and conquest is the central theme of "The chief of the 5 nudes extends little by little his power over the Jura-Paris Road," as Duchamp tentatively entitled the composition.⁸¹ Duchamp continues in this note: "This collision [between the 5 nudes and the Jura-Paris road] is the *raison d'être* of the picture." The chief "annexes to his estates, a battle (idea of a colony)," and "he and the 5 nudes form a tribe for the conquest by speed of this Jura-Paris road."⁸³ The headlight child "absorbs by crushing (gold dust, graphically) this Jura-Paris road," whose "pictorial matter . . . will be *wood*."⁸⁴ As this last statement reminds us, this work would have nothing to do with landscape painting; it was to be raised to a "state entirely devoid of impressionism," just as the *Large Glass* would be.⁸⁵

Given his description of the headlight child as "the pure child," "the child-God, rather like the primitives' Jesus," a child "radiant with glory" (fig. 47), his identity as a Christ figure, son of the Virgin Mary/automobile, is unmistakable.⁸⁶ As a headlamp, he is the new Light of the World, conquering it with the aide of a "tribe" (the tribes of Israel?). Even Duchamp's references to wood and gold dust suggest that the Jura-Paris Road would function simultaneously as the most modern of images (wood being a "translation of powdered silex" and gold dust relating to scientific theories about the makeup of comet's tails)⁸⁷ and the most traditional (wood and gold leaf being the materials for altarpieces). Such overlays of traditional religious imagery and modern technology were undoubtedly a part of the experience of the trip to Jura, because they were favorite themes of Apollinaire.

It was on this visit to Buffet's family home that Apollinaire first recited his poem "Zone," which he named in honor of this region of France.⁸⁸ In it Apollinaire writes with the same iconoclastic humor of "Christ who climbs the sky better than any aviator / He holds the world record for altitude."⁸⁹ Apollinaire, who identified himself with Christ in a draft version of "Zone" and in other poems, had also regularly associated his loves with the Virgin Mary.⁹⁰ He addressed his mistress, Marie Laurencin, in this manner in his poetry, and in "Les Fiançelles" of 1908, he updated the symbolism of Marie and the rose by referring to the "roses of electricity."⁹¹ Modeling his approach in part on Apollinaire's erudition and his fusion of old and new, Duchamp, in the *Large Glass*, would go even further in recasting the icons of Western culture in terms of modern science and technology.

The theme of the automobile serves as a link between Duchamp's notes for the Jura-Paris Road (his first extensive exploration of human-machine analogies) and his ini-

tial juxtaposition of organic and mechanical forms in his Munich *Virgin* drawings. As noted in chapter 2, in subsequent notes on the Bride Duchamp would describe the Virgin/Bride as an *arbre type*, evoking the "arbre de transmission" (fig. 50) and various other *arbres*, or shafts, in an automobile.⁹² Indeed, when *Virgin (No. 1)*, one of the "two studies of this arbor type" Duchamp made in Munich,⁹³ is turned ninety degrees to the right (fig. 51) and compared to a didactic illustration of an automobile, such as figure 50, the similarities are striking. In Duchamp's drawing a horizontal shaft anchors the composition, and the upper-right corner (in this orientation) calls to mind the brake lever tilted forward at a forty-five-degree angle in figure 50. There is even the suggestion of part of a tire or wheel at the right edge of the drawing, below the midpoint on that side.

In light of Duchamp's subsequent linking of automobile imagery to religious iconography in the Jura-Paris notes, abetted perhaps by the model of Apollinaire, Duchamp's use of the title "Virgin" for these drawings would seem to have been, on one level, a conscious reference to Mary, the Bride of Christ, whom he presents in twentieth-century language. It may well have been the term *arbre* that suggested this irreverent identification. In the prominent motif of the Tree of Jesse in Christian iconography, Mary is symbolized by the "rod" of the Tree and Christ by its "flower": he is literally the "divine blossoming" to which Duchamp refers in the Jura-Paris notes.⁹⁴ The notion of the Virgin as a modern *arbre*, or rod (i.e., a transmission shaft), would certainly have amused Duchamp and his colleagues; it also set the tone for the larger scheme of analogies and punning in the *Large Glass*.

Transferred to the Bride of the *Large Glass*, such iconoclastic religious overtones would continue as an underlying motif and would even be augmented with mythical associations (see chaps. 11 and 12). Yet, it was the Bride's scientific and technological identity that was Duchamp's primary concern in the notes he was making for the *Large Glass*. Thus, she acquired many other associations beyond the automobile (and her links to X-rays and chemistry equipment) and was not to be a direct translation of a single technological or scientific source.⁹⁵ The same cannot be said of Picabia, who shared certain of Duchamp's interests, but usually quoted his sources much more overtly.

Thus, Picabia's *De Zayas! De Zayas!* (fig. 52) is modeled on a diagram of a Delco starting and lighting system, as William Camfield has established.⁹⁶ Although in the *Large Glass* Duchamp would work out multiple analogies between anatomical functions and scientific and technical processes, Picabia simply grafted a female symbol, the corset, onto this electrical system. Picabia approached the lightbulb in a similar manner, using it directly in 1917 as a portrait of an American girl (fig. 131). Glass tubes and filaments were also to play an important role in one aspect of Duchamp's thinking about the Bride of the *Glass*, but she would never be identified solely with a lightbulb.

Duchamp had come closest to identifying a human as a light or lamp in the Jura-Paris headlight child. In addition to his association with a contemporary headlamp by means of his nickel and platinum materials, Duchamp describes the headlight child as being connected to his machine-mother by a construction "based . . . on the concept of the endless screw" (fig. 47), as if he were an electric lamp with a screw-base socket. As such, he is the "divine blossoming" of the electrical system of his automobile mother, who, we are reminded, is "more human" than he, the "pure machine." As imagined by Duchamp, his "radiant glory" updates Baroque nativity scenes in which light radiates from the manger of the Christ child.

Yet the Jura-Paris Road project was never executed, and Duchamp would not paint his first machine with human associations, *Chocolate Grinder (No. 1)* (fig. 66), until spring 1913. At the same time, while visiting New York, Picabia produced his first "object portrait" (fig. 57), the genre he would develop fully in works of 1915, such as *De Zayas! De Zayas!*⁹⁷ Like Duchamp in the headlight child, Picabia based his *Mechanical Expression Seen through Our Own Mechanical Expression* (fig. 56) on a light source—in this case, the glass Crookes tube used to produce X-rays. This choice was emblematic of the interest in scientific equipment that now joined Picabia's and Duchamp's shared concern with the machine, as each artist moved definitively beyond Cubism and its quest for the invisible. Unlike Picabia, however, for whom science seems to have served primarily as a new visual resource, Duchamp would devote himself to the ideas as well as the images of science in his search for subject matter that suitably reflected his "gray matter" and his "urge for understanding."⁹⁸