### VOLUME III

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## NINETEENTH-CENTURY ARCHITECTURE

12

Volume Editors: Martin Bressani and Christina Contandriopoulos

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# Contents

List of Illustrations About the Editors Contributors to Volume III		ix xvii xix
Int	roduction: Nineteenth-Century Architecture	
Mar	tin Bressani and Christina Contandriopoulos	xxvii
Pa	rt I Historicism, the Beaux-Arts, and the Gothic	1
1.	Revivalism	
	Martin Bressani	3
2.	Antiquity Reborn: Quatremère de Quincy's Argument for Polychromy in Le Jupiter Olympien	
	Nicholas Roquet	19
3.	The French Beaux-Arts	
	Jean-Philippe Garric	45
4.	Outward Forms and Inward Spirit: The Recovery of Historical Church Architecture	
	in the Nineteenth Century	
	Stephen Bann	60
5.	Romantic Historiography and the Paradoxes of Historicist Architecture	
	Barry Bergdoll	79
6.	Ruskin and Victorian Gothic	00
-	Stephen Kite	99
1.	The Search for a National Style Ákos Moravánszky	116
8.	Gothic Historiography: An Interdisciplinary Speculation	110
0.	Cameron A. Macdonell	133
	Culture II. Mucuoleu	200
Da	rt II Debates on Structure, Materials, and Tectonic	
Pa		1 40
	Expression	149
9.	The New Material-Based Realism of Nineteenth-Century Theory and Practice	
2.	Neil Levine	151
10.		
	Timothy Brittain-Catlin	174
11.	German Tectonics	
	Mitchell Schwarzer	192
12.	Gottfried Semper and Modern German Theory	
	Harry Francis Mallgrave	205
13.		
	Martin Bressani	227
14.	<b>U</b>	
	Fin-de-Siècle France	243
	Réjean Legault	245

Part III	The Question of the House, Social Utopias,	
	Science, and New Technological Infrastructures	269

15.	Domestic Architecture as a Mode of Separation	5
	Annmarie Adams	271
16.	"The Science of the Plan": House-Building and the Like, 1860–1930	207
17	Laurent Stalder, translated by Jill Denton	287
17.	Comfort: Architecture's Technological Dream	308
10	Georges Teyssot	308
18.	Universal Expositions, Utopias, and Architecture	348
10	Antoine Picon The Fourierist Phalanstère: Building a New Society through Architecture?	940
19.	Laurent Baridon	365
20.	From Object to Field: The Uses of Photography by Nineteenth-Century Architects	505
20.	Peter Sealy	385
	The outy	505
Da	ut IV Develology Acethotic and Opport	407
Pa	rt IV Psychology, Aesthetic, and Ornament	407
21.	Decoration as Discourse in Nineteenth-Century Britain	
21.	David Brett	409
22.	Ornament and Expressive Lines: Nature and Symbol in Victor Ruprich-Robert's	
	Flore ornementale	
	Ralph Ghoche	421
23.	Constructing Emotions: The Scientific Aesthetics of Architecture in France 1860–1900	
	Estelle Thibault	436
24.	The Tectonics of the Soul: Animist Survivals in Nineteenth-Century Architecture and	
	Ornamentation	
	Spyros Papapetros	452
Pa	rt V America	491
25.	Furness, Richardson, and Sullivan, and the Anglo-French Synthesis	
	Michael J. Lewis	493
26.	What American Architects Learned in Paris, 1845–1914	
	David Van Zanten	513
27.	Structural Expression and Functional Representation in American Architecture	
	1850–1910	
H	Joseph M. Siry	534
28.	Canadian Architecture in the Nineteenth Century: Identities in Tension	
	Marc Grignon and Christopher Thomas	553
	olite/amainterina CC N1009-C64 2016 L00C-2009-dc23	
Pa	rt VI Colonialism and Cross-Perspectives: Japan,	
	China, Russia, India, and others	575
29.	Russian Architecture of the Nineteenth Century	
	Dmitry Shvidkovsky	577
30.	Multiple Modernisms in Khedivial Egypt	
	Mercedes Volait	598

Contents	vii

31. Dismembering and Remembering the Virtuous Mughal City in Nineteenth-Centr		
	British India	
	Santhi Kavuri-Bauer	613
32.	Of Emperor and Empire: Architectural Constructions of Imperial Japan	
	Alice Y. Tseng	629
The	Companions to the History of Architecture	645
Index		657
mue	Δ	577

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# 22 ORNAMENT AND EXPRESSIVE LINES

Nature and Symbol in Victor Ruprich-Robert's *Flore ornementale* 

## Ralph Ghoche

Although it may seem paradoxical today, experimentation in ornament was widely believed in the nineteenth century to be the readiest means of arriving at a new architecture. In contrast to its condemnation by the early twentieth-century avant-garde, ornament occupied a distinct place in the imaginary of nineteenthcentury architects, who often saw it as the primary means by which buildings expressed their purpose and social relevance to a burgeoning public sphere. Indeed, ornament was frequently regarded as a form of communication, which in contrast to other artistic forms, was believed to deliver its message with extreme concision and in a manner that seemed to rival the expediency of the written word. Not surprisingly, architects and decorative artists in England and Continental Europe often referred to the "vocabulary" and the "grammar" of ornament, and spoke of its "lexicon" and "syntax," seeing in the repetitive strokes and meandering curls that give ornament shape, a visual parallel to glyphic script.

For some, however, the analogy to language was more fundamental. The study of ornament afforded a view into deeply held human impulses and access to penetrating internal realities. Ornament, like writing, was essential to humanity and as intrinsic as its dream-life which it was often seen to reproduce. Moreover, ornament provided a historical glimpse into the motivations of the most ancient of civilizations and was seen to belong to a family of artifacts (that included coinage, funerary urns, and tombstones) whose form and iconography demanded new scrutiny and new methods of interpretation. Ornament was thus described as "symbolic" for its ability to condense and intensify real-life form into an abstract set of figures and signs, and for its capacity to produce a new lens through which to see the world. These qualities were particularly important in the new culture of the metropolis, where ornament demonstrated its continued relevance in environments permeated by prosaic values and quick-paced exchange.

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During the mid-nineteenth century, the call, from diverse artistic fields, to renew the decorative surface of architecture was heard far and wide. Soon after the short-lived revolution of 1848, French author and critic Théophile Gautier published an impassioned plea in the Romantic journal *L'Artiste*, decrying "old and ancient emblems ... now empty of meaning" and calling for a "whole new, vast system of symbols" to be "invented to answer the new needs of our time."<sup>1</sup> Gautier appealed to artists and ornamentalists to transform the "nudity of Parisian edifices" and "envelop them with resplendent garments" made up of decorative murals and surface ornamentation. To achieve the luxuriant vision of a polychrome city, Gautier advised artists to steer clear of accustomed iconography, urging them instead to delve into the forms of nature "unknown to Richardson, Gravelot and César Ripa."<sup>2</sup>

French architect César Daly echoed the sentiment. Daly was deeply invested in the technological revolution that was so quickly transforming the profession. The *Revue générale de l'architecture et des travaux publics*, which he founded in 1840, paid special attention to the new materials, techniques, and scientific discoveries that emerged during the four political regimes spanning its publication run. Daly struggled to develop a theory of architecture that reflected its progressive, egalitarian, and democratic basis while at the same time registering the new methods of construction and scientific advances. Modernity, Daly believed, demanded the architect loosen his attachment to the past and search for new forms that better expressed the "plasticity" of the latest materials such as cast iron and cement. Like Gautier, Daly understood nature-form as a corollary to modern progressive culture and suggested that future ornament be drawn from local flora.<sup>3</sup>

But while these writers advanced the cause of a progressive architecture revived by its ornamental surface, and though they called for the creation of original motifs drawn from natural specimens, the task would be left to others to determine the outlines of this new, modern ornamentation. The ornamentalists that took heed of Gautier and Daly's call and grounded ornament in nature were faced with an important question: How could new experimentation with vegetal form be reconciled with ornament's historical role as a communicative element? The rigorous attention to new species, some with no traditional symbolic relevance, meant that architects had to search for the meaning of ornament beyond the historical import of its forms. Chief among these new ornamentalists was the architect Victor Ruprich-Robert, whom Daly considered to be one of his closest allies in the struggle for a forward-looking architectural theory, recruiting him to write over two dozen pieces for the *Revue générale* and continually publishing his recent work and theories.

In nineteenth-century France, few works of ornamental theory commanded the interest and attention of architects and decorative artists more than Ruprich-Robert's *Flore ornementale*. Published in an abridged edition in 1866 and then in its complete form in 1876, *Flore* was the result of three decades of teaching at l'École de dessin de Paris (later renamed l'École des arts décoratifs), a training school for

aspiring decorative artists and craftsmen, as well as a springboard for studies at the École des Beaux-Arts. The book reveals Ruprich-Robert's intention to depart from the historicist tendencies of his period and to develop instead a new comprehensive "grammar" of form based on an extensive range of natural plant species (Figure 22.1). In the plates to *Flore* one finds the celery stalk, the papaya plant, the absinthe flower, and the poppy seed, to name but a few of the five hundred species represented and transformed into ornamental compositions.

Ruprich-Robert framed his ambitions explicitly as an attempt to develop a new symbolic repertory of form that could replace the traditional iconography rendered ineffective by the rise of industrial culture. He believed that industrialism and the positivist mindset that it had engendered had produced two equally problematic currents in the arts: the mechanical reproduction of self-same elements (British inventor Thomas Jordan's carving machine was a particularly successful example of such a technology affecting the decorative arts) and Realism, as seen, for instance, in the paintings lining the walls of the Salon des refusés in Paris. "Photography shall never replace painting," Ruprich-Robert exclaimed in the introductory text to the *Flore*. Challenging Victor Hugo's dire predictions in the novel *Notre-Dame de Paris*, he added: "nor too shall the printing press, regardless what has been said of it, replace architecture."<sup>4</sup>

The reference to Hugo's famed debasement of architecture was not uncommon in the mid-nineteenth century. Essentially, Hugo claimed that with the invention of the printing press in the mid-fifteenth century, books had supplanted buildings as the true communicating mediums of society. Implicit in Hugo's famously digressive chapter "This will Kill that" was the suggestion that architecture was but mute and inert material and, left to its own means of expression, was no longer able to render socially relevant ideals. Gautier and Daly both made reference to Hugo's polemical claim. Gautier agreed with Hugo and added the corollary that printing had also replaced the medieval illuminator's ornamented marginalia. This reinforced Gautier's larger point that ornament too was in need of a dramatic renewal.<sup>5</sup> For his part, Daly challenged Hugo's judgment, arguing not merely that Hugo's predictions had seemed "not to have come about," but that the situation was entirely the reverse.<sup>6</sup> No doubt thinking of the effect of his own publication on the state of architecture in France, Daly proposed that the printing press had helped spawn a renewed interest in architecture and, as a result, it had helped save many of history's important monuments.

The reason for Daly's optimism is noteworthy. Daly and the dozens of architects and archaeologists he enlisted as frequent writers for the journal, argued that architecture remained a powerful tool for collective expression. Beginning around the mid-century, the debate about architectural legibility that had been pivotal for the previous generation of architects in conflict with the orthodoxies of the Académie des Beaux-Arts, was recast as one involving the new science of aesthetics.<sup>8</sup> Daly's theoretical proposals for architecture's rejuvenation took many turns during his long career, influenced as it was by shifting philosophical interests and by the work



**Figure 22.1** Victor Ruprich-Robert, "Graines, Boutons, etc.," from *Flore ornementale*, plate 104. Credit: © Ralph Ghoche. Courtesty Canadian Centre for Architecture, Montréal.

#### Ornament and Expressive Lines 5

of his close friends and collaborators. Daly developed a working theory of architecture's mode of symbolic representation that resonated with the new research in aesthetics and located architectural meaning in a substratum of regulating lines and geometrical forms. In his 1847 article titled "Du symbolisme dans l'architecture," Daly argued that like the illiterate guildsmen of the middle ages, a period that, in his opinion, had developed a complete "grammaire du symbolisme," the nineteenth-century artist and architect needed to employ the contour line forcefully and use it to convey specific and deliberate attitudes and emotions. Using pantomime as an analogy, Daly explained:

Is there not a pantomimic language, and is this language not more universally understood than all other languages? ... We can argue that pantomimic language and the language of the fine arts have the same syntax, and that the configuration of lines that correspond to the emotion expressed through the movements of the mime, can be found in the plastic arts as symbolic of this same emotion.<sup>9</sup>

Like a number of philosophers, art critics, and architects, Daly believed that the French were lacking a clear, philosophical understanding of artistic expression. The sentiment, widespread in the mid-nineteenth century, would prompt art critic Charles Blanc to urge his fellow scholars to learn from the German field of aesthetics and develop a coherent theory and science of art for themselves. The French, as the argument went, had a superior artistic culture and yet paid no philosophical attention to its basic virtues.<sup>10</sup> What was needed, as the philosopher Charles Lévêque would propose, was a "science du beau."<sup>11</sup> Daly himself would argue, albeit quite late in his career, that the central question confronting architects was "aesthetic."<sup>12</sup>

One of the first architectural works to be discussed through the lens of these new theories was a tomb for the admiral Dumont d'Urville designed by French architect Simon-Claude Constant-Dufeux. The tomb's form was mocked by some as "bizarre" and even "pain inducing" due to its garish polychromy and unusual conical shape.<sup>13</sup> The peculiarity of the design was the result of Constant-Dufeux's interest in pre-classical lithic monuments which, scholars argued, were the true, archaeological origins of architecture (Figure 22.2). Constant-Dufeux justified the exaggerated parabolic profile of the tomb by pointing to history and by explaining that the precise mathematical line that it traced followed the arc of a projectile thrown in the air.<sup>14</sup> Constant-Dufeux's way of employing what was an otherwise abstract and value-free mathematical line and rendering it powerfully resonant impressed the American architect Henry Van Brunt who read in the rise and fall of its curve "a symbolic expression of human life, death and immortality."<sup>15</sup> Echoing Daly, Van Brunt concluded his essay "Greek Lines" by arguing that "like the gestures of pantomime," the abstract lines found in projects such as Constant-Dufeux's tomb constituted "an instinctive and universal language" that were "restoring to architecture its highest capacity of conveying thought in a monumental manner."16



**Figure 22.2** Victor Ruprich-Robert, "Tombeau de Constant-Dufeux au cimetiére Montparnasse." Constant-Dufeux's tomb of Dumont d'Urville is rendered in bas-relief on the back of this tomb's stele. Simon-Claude Constant-Dufeux, *Album composant 115 de grandes planches de ces monuments antiques et projects d'architecture* (Paris, A. Jailly, 1875), plate 116. Courtesy of the Avery Architectural and Fine Arts Library, Columbia University.

#### Ornament and Expressive Lines **7**

Constant-Dufeux's student Ruprich-Robert picked up on two central aspects of his mentor's work and adapted them to the composition of ornament. First, he located the origins of architecture in the primitive worship of nature, following lines introduced by eighteenth-century antiquarians that disputed the neoclassical emphasis on imitation. Ruprich-Robert makes this intention clear in a concluding plate to *Flore* titled "Monument to Agriculture" (Figure 22.3). The illustration depicts the sacred buildings of an unknown agrarian civilization, whereupon every detail portrays the veneration of nature's fecund forces. One discerns, for instance, a distant temple whose entrance is marked by the statue of a bull, a figure seen by the baron d'Hancarville, Richard Payne Knight, and other prominent late-eighteenth-century antiquarians as the paramount symbol of generation. The iconography of the temple was comprised of other fertility symbols including swarms of bees, sheaves of wheat, and budding cannabis stalks.

Antiquarian discourse was likely the source of Ruprich-Robert's ambition to search for new symbolic identity in ornament. Architecture and ornament were symbolic, for him, in that they expressed nature's forces, and not because they may (or may not) mimic some of its forms. Like Constant-Dufeux, whose conic tomb overtly conveyed the fertility of nature by updating the appearance of Etruscan phallic monuments, Ruprich-Robert's reproductions of nature sought to activate the vitalist pulse coursing through the flesh of visible forms. In Flore, he detailed the animistic character of ancient and indigenous cultures and urged his readers to observe the striking resemblances in the plant kingdom to animal and human life. He cited the ability of plants to breathe, eat, sleep, compete, to be sick, and to have emotional responses. Appealing to the authority of several natural scientists, some well known, such as Carl Linnaeus and le Comte de Buffon, and others more esoteric, such as Arnold Boscowitz and Camille Leynadier (these latter two writers subscribed to the belief in plant souls), Ruprich-Robert advanced the idea that plants had a certain level of self-consciousness and freedom and that these attributes pointed to their possession of "an animating force."<sup>17</sup> The display of the otherwise invisible animating forces of nature is all present in the architect's drawn and built work, these tendencies finding their most suggestive demonstration in the tomb the architect designed for his deceased mentor Constant-Dufeux in the Cimetière Montparnasse in 1874 (Figure 22.2).

Second, Ruprich-Robert picked up on Constant-Dufeux's manner of employing the contour line as a powerfully symbolic form through which to communicate specific ideas and to elicit forceful emotions. The theories of Victor Cousin were pivotal starting points for Ruprich-Robert, as they had been for Constant-Dufeux before him. In his work *Du vrai, du beau et du bien* of 1836, developed from lectures delivered nearly two decades earlier, Victor Cousin argued that it was the task of the nineteenth century to reconcile the two main currents of Enlightenment thought: the empiricism of Locke and Condillac and the idealism of Kant and Reid. One could do neither without sensations nor without reason, he maintained. The complementary truths of each philosophical system would emerge out of this



**Figure 22.3** Victor Ruprich-Robert, "Monument to Agriculture," from *Flore ornementale*, plate 150. Credit: © Ralph Ghoche. Courtesy Canadian Centre for Architecture, Montréal.

"éclectisme réfléchi." Architects for whom Cousin's philosophy had resonance sought out the "juste milieu" between the spiritual and the material, and the ideal and the real. While terms like these had been framed by classicists such as Quatremère de Quincy in the early nineteenth century as strict opposites (one was encouraged to "generalize" from the local to the ideal, the latter eclipsing the former), Cousin's philosophy of "immediate abstraction" demonstrated that the one was simply sterile without the other. Furthermore, Cousin conceived of the reconciliation of divergent elements in symbolic terms and saw the artist as the chief protagonist for such a revelation: "In nature," wrote Cousin, "this symbol is often obscure: art, by making it more transparent, attains effect that nature itself does not always produce."<sup>18</sup>

For Cousin, the historicization and psychologizing of all facets of life made the possibility of a pure, atemporal aesthetic form philosophically untenable. There was no Kantian aesthetic category; there was no form devoid of representational value: "form must always be the form of something," Cousin asserted.<sup>19</sup> The imminent and the transcendental, the real and the ideal were intimately connected, not by an Aristotelian scale of gradations, but by immediate correspondence; reality was completely pervaded by the realm of ideas and morals, the one being a kind of "revelation" or a "symbol" of the other.

During the mid-nineteenth century, aesthetic theorists scrutinized the most muted and non-pictorial artistic forms in order to distill and decipher their expressive and suggestive content. Understandably, due to its inherent abstraction, ornament became a prime testing ground for the communicability of the pure line. Already by the mid-1830s, Cousin's student Théodore Jouffroy had developed a working theory of symbolic representation in which the expressive quality of the line was discussed as though it were an abstract sign of emotional content.<sup>20</sup> But the key figure to examine the signification of the pure line in France was the art critic Charles Blanc, who eventually held the Chair d'esthétique at the Collège de France. "At first glance nothing seems more abstract than a simple line, nor more insignificant," remarked Blanc in an article appropriately titled "L'Esthétique des lignes," which was published in the Revue des cours littéraires of 1869. "However," he continued, "under scrutiny, we recognize that these abstractions are not alien to our emotions, and that they can be expressive, not to say eloquent."<sup>21</sup> Blanc's argument reversed the assumptions of the eighteenthcentury theories of character by beginning with the expressive content of the abstract line and working that analysis back into specific art forms. His vision was an x-ray of sorts, perceiving a hidden matrix of lines and geometries behind multifarious appearances. Ornament was especially interesting to Blanc, who believed that the decorative patterns of Arab and Persian cultures were remarkable for their ability to transmit emotional and aesthetic ideas while remaining completely abstract and non-mimetic. It was, as he saw it, an "an algebra of our ideas, ... thought itself."22

Critical for Ruprich-Robert's theory of ornament was the notion that forms could be expressive beyond their representational value. This interest led to a fascination with the work of Rodolphe Töpffer, a Swiss graphic artist whose ambitions of being a painter were forestalled by problems with his vision. Famous today as the creator of the comic strip, stringing cartoon images into story lines, Töpffer's ideas on art were influential for an impressive list of artists and writers: Johann Wolfgang Goethe, Theodore Vischer, Theophile Gautier, Alfred Jarry, Leo Tolstoy, and even the young Charles-Edouard Jeanneret (later Le Corbusier), who wished to write a doctoral thesis on him.<sup>23</sup> In his short book of 1845 titled Essai de physiognomonie, Töpffer claimed that the mind's eye immediately conferred on a figure, a line, or a sketch, "by the mere fact of being drawn," a sense and significance that would elicit instantaneous recognition from the viewer. Töpffer demonstrated his theory by drawing a series of quick and rough contour sketches of human faces and challenging the viewer to deny the presence of "a clear and determined expression" in the unwitting grimaces of the resulting forms.<sup>24</sup> In his book Réflexions et menus propos d'un peintre Genèvois, published posthumously in 1858, Töpffer elaborated on his earlier observations. Like Blanc, Töpffer reversed the precepts of the theories of physiognomy and character by positing as a starting point the semantic quality of abstract lines over and above their imitative value. According to Töpffer, lines resembled a written or spoken language in their notational relationship to the object of imitation. The inherent variance between graphic lines and corresponding objects of imitation that characterized Töpffer's theory of drawing has led at least one contemporary critic to portray him as a visual semiotician avant la lettre.<sup>25</sup>

The theories advanced by Cousin and Töpffer were important contributions to what Tzvetan Todorov has described as "the shift of attention from imitation to production" that occurred in the nineteenth century whereby works were no longer determined by their reference to the world.<sup>26</sup> They provided the groundwork for Ruprich-Robert to break from a classical theory of imitation that involved a gradual and "generalized" abstraction from the model, and to propose what can be best described as a theory based on expression. This latter approach rests on the simultaneous correspondence between the work and its referent. This is what was meant by Cousin when he explained that forms were "revelations" or a "symbols" of ideas.

In developing his compositions for *Flore*, Ruprich-Robert proceeded in much the same way as Cousin and Töpffer had proposed. Rather than using natural forms as though borrowing from a fund of historical meanings and received ideas, Ruprich-Robert explained that the artist would have to revisit nature with a fresh eye for lines and contours that evoked determined expressions. Like the undeniable grimaces in Töpffer's sketches, he encouraged artists to discover in individual plants "an expression, a language that belongs uniquely to them."<sup>27</sup> In the footnotes of *Flore*, Ruprich-Robert urged the reader to consult a pair of curious little books: Charlotte de la Tour's *Le langage des fleurs* and Pierre Zaccone's *Le nouveau langage des fleurs*. These pocket guides provided the reader with short descriptions of

flowers, matching each with its corresponding thought or emotional content. Along these same lines, Ruprich-Robert described the ancient Arabic practice of Sélam in which bouquets of flowers were composed in such a way as to express whole phrases and nuanced sets of emotions.

From the passages from Töpffer's work that Ruprich-Robert chose to cite in Flore, it would seem that what interested him most in the Swiss cartoonist's writings was the idea that, if used effectively, the contour line could illicit in the viewer specific emotional states and ideas. Ruprich-Robert reshaped this belief with the catchphrase "drawing is thought itself" ("le dessin est la pensée elle-même").<sup>28</sup> Ruprich-Robert's attention to drawing followed a larger trend in the midnineteenth century that called for its promotion in schools and saw its popularization across all walks of life. In a governmental report on the subject, Romantic critic Achille Hermant proposed that "in the near future, we shall sense the need to learn to draw as we have learned the need to read and write." "Drawing," Hermant continued, "is writing in all languages, it is writing for the eyes."<sup>29</sup> Many artists, academics, and critics maintained that France needed to universalize the teaching of drawing as it had done with writing after the 1789 Revolution. Töpffer had made similar observations decades earlier, even arguing that the immediacy, universality, and "extreme concision" of drawing made it far more effective at communicating ideas than written text. For Ruprich-Robert, these new theories of drawing and the visual reception of form turned Hugo's argument for the effectiveness of writing on its head for they made a persuasive case that a properly ornamented building could speak far more poignantly than words.

Ruprich-Robert's interest in revealing nature's animating forces and his attention to aesthetic theories produced ornamental compositions that often moved from surface tracery into three-dimensional, rounded depth. The design for a bas-relief decoration published in Flore and based on the exotic Andean Calceolaria plant demonstrates this approach well. Compositions such as this one transformed the great profusion of plant specimens illustrated in the first part of Flore by recombining and reshaping their parts. Ruprich-Robert reworked the specimens in two distinct ways: he abstracted the complex plant structure into spry lines and contours, which were often incised directly into the receiving medium, whether stone or wood; alternately, he inflated the flesh of specimen and produced exaggerated, corpulent forms that generated a panoply of grotesque and often erotic expressions. A plate assembling four variations (in four distinct materials) of a column capital illustrates this latter strategy clearly (Figure 22.4). In this, Ruprich-Robert's ornamental approach shared much with the prevailing decorative tendencies during the Second Empire, and the building surfaces of Haussmann's Boulevards frequently incorporated similarly flattened ornament ("ornement à plat") in conjunction with what Jacques de Caso has termed detached ornament ("ornement à motif détaché").<sup>30</sup>

Ruprich-Robert's *Flore ornementale* provides a glimpse into the theoretical underpinnings of much of the ornamental production in France in the latter half of the



**Figure 22.4** Victor Ruprich-Robert, "Capital," from *Flore ornementale*, plate 145. Credit: © Ralph Ghoche. Courtesy Canadian Centre for Architecture, Montréal.

nineteenth century, a period largely characterized by a gradual detachment from historical form and an interest in the diversity of natural species and models. *Flore* revealed these twin intentions by conjoining two genres that traditionally had been seen as belonging to separate disciplinary spheres: the botanical atlas and the ornament pattern book. Much like the popular botanical and scientific folios of the era, Ruprich-Robert's ornamental practices were in line with the prevalent methods of representing nature by idealizing its geometrical structure and rectifying its forms.<sup>31</sup> But idealizing nature was not sufficient in a discipline with the kind of historical charge as architecture, and the process of de-historicization in Ruprich-Robert's work was coupled with an equally fervent effort to re-symbolize ornament, investing it with a new symbolic identity based on an understanding of vitalist forces, and on the new theories of drawing and aesthetics.

#### Notes

- 1. Théophile Gautier, "L'art en 1848," l'Artiste, ser. V, vol. 1 (1848): 114.
- 2. Gautier, "L'art en 1848," 115.
- 3. César Daly, "Introduction," Revue générale de l'architecture et des travaux publics 14 (1856): 7–8.
- 4. Victor Marie Charles Ruprich-Robert, *Flore ornementale: essai sur la composition de l'ornement, éléments tirés de la nature, et principes de leur application* (Paris: Dunod, 1876), 123.
- 5. Théophile Gautier, "L'imitation de Jésus-Christ," l'Artiste, new ser., vol. 3 (1858): 139.
- 6. César Daly, "Achèvement de la cathédrale de Cologne," *Revue générale de l'architecture et des travaux publics* 14 (1856): 92.
- 7. Daly made reference to Sulpice Boisérée's book *Histoire et description de la cathédrale de Cologne* and its role in drawing attention to the need for the completion of this important historical monument.
- Neil Levine, "The Romantic Idea of Architectural Legibility: Henri Labrouste and the Néo-Grec," in *The Architecture of the École des Beaux-Arts*, ed. Arthur Drexler (New York: Museum of Modern Art, 1977), 325–416. An excellent historical account of the rise of the science of aesthetics in France can be found in Estelle Thibault, *La géométrie des émotions: Les esthétiques scientifiques de l'architecture en France, 1880–1950* (Wavre, Belgium: Margada, 2010).
- 9. César Daly, "Du symbolisme dans l'architecture. L'antiquité et le moyen age," *Revue générale de l'architecture et des travaux publics* 7 (1847): 60.
- 10. Charles Blanc, Grammaire des arts du dessin, architecture, sculpture, peinture, jardins, gravure et pierres fines ... lithographie, 2nd ed. (Paris: J. Renouart, 1867).
- 11. Charles Lévêque, La science du beau, étudiée dans ses principes, dans ses applications et dans son histoire (Paris: A. Durand, 1862).
- 12. César Daly, "Introduction," Revue générale de l'architecture et des travaux publics 37 (1880), 3.
- 13. André-Hippolyte Delauney, "Tombeau de l'amiral Dumont d'Urville," *Journal des artistes* 18 (1844): 388.

- 14 Psychology, Aesthetic, and Ornament
- 14. Simon-Claude Constant-Dufeux, "Discours prononcé par M. Constant Dufeux le 1er novembre 1844, à l'inauguration du monument de Dumont d'Urville," *Revue générale de l'architecture et des travaux publics* 8 (1848): 443.
- 15. Henry Van Brunt, Greek Lines and Other Architectural Essays (Boston: Houghton, Mifflin and Company, 1893), 86.
- 16. Van Brunt, Greek Lines, 87.
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- 18. Victor Cousin, Du vrai, du beau, et du bien, 2nd ed. (Paris: Hachette, 1854), 177.
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- 22. Blanc, "L'esthétique des lignes," 614.
- 23. Stanislaus Von Moos, "Voyage en Zigzag," in *Le Corbusier before Le Corbusier: Applied Arts, Architecture, Painting, Photography, 1907–1922,* ed. Stanislaus von Moos and Arthur Ruëgg (New Haven: Yale University Press, 2002), 26.
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