

The Swiss Principle of *Béton Brut*: 'Betonkonstruktion'

A Debate between Theory and Practice, 1940s–1960s

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In the context of the affirmation of *béton brut*, discovered during the construction of the Unité d'habitation in Marseille, Switzerland's cultural position is emblematic. Whilst in international debates this technique is often characterized by theoretical and ideological accents (converging in the definition of New Brutalism and International Brutalist Style), in Switzerland, exposed concrete takes on a particular meaning, emancipated from the desire to investigate its intrinsic theoretical and artistic concepts, and devoid of any search for decorative textures. Instead, it is the engineering tradition that confers to concrete a technical and scientific vision which admits a certain degree of imperfection in its implementation, even if confined within the limits of material economy or construction site logic. Exposed concrete, informed by the principles of the engineering tradition, is marked in the Swiss culture of the 1950s by a 'rational' character and becomes the pretext to assert the refusal of any formal or intellectual designations other than that of the most radical construction.

Exposed Concrete, or the Myth of Perfection

The world conflicts of the twentieth century generated cultural isolation and important economic restrictions in Switzerland. The debates focusing on the sentimentalism of *Heimatstil* and the functionalism of *Neues Bauen* are contaminated by international research striving for an increasingly 'humanist' and 'plastic' architecture.¹ These different currents diverge and intertwine as much in debates as in built works, and it will only be at the beginning of the 1960s that the affirmation of trends capable of undermining the technicality originating from the 1920s will become visible.

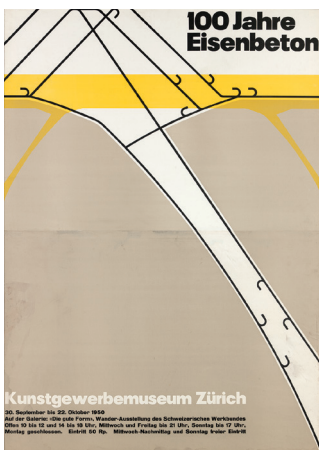
Precisely because of its neutrality during the Second World War, Switzerland (in addition to Scandinavian nations) is one of the first countries to which critics and architects turn in search of examples of reconstruction and pragmatic solutions for a simple and economic architecture. The common question faced by Western architectural culture on the fate of the Modern Movement – its precepts and materials, and its typological and urban solutions – can only increase interest

in this ‘small democracy’, seen as the pioneer of a certain trend within the Modern Movement.² It is not the rise of a new movement that shifts the attention towards Switzerland, but a particular alchemy of influences that demonstrates a hypothetical development and synthesis of European architectural culture. The characteristic features of ‘minimum of means’ and ‘technical perfectionism’ are coloured by different European influences ranging from Perret’s ‘concrete-classicism’ to the ‘Corbusier-direction’ and to the impact of Italian rationalism.³

In the catalogue’s preface of the exhibition *Switzerland Planning and Building*, organized in 1946 in London and then staged in various European capitals, Hans Hofmann affirmed ‘Today we think of the Modern Movement as already belonging to the past.’⁴ Hofmann was a professor at the Swiss Federal Institute of Technology and he had been the curator of the Swiss National Exhibition that had took place in Zurich in 1939. What Hofmann means by ‘Modern Movement’ is the particular Swiss connotation of 1930s and 1940s functionalism and the obsession with the canons of utility and function, which in the Neues Bauen had dictated an ‘almost invariable choice of concrete or reinforced concrete as a building material.’⁵ For Hofmann, ‘functionalism’, ‘technical style’ and ‘concrete style’ become synonyms. In the same way, the intrinsic alliance between an ‘appropriate use of material’, a certain ‘style’, and the search for a ‘painstaking execution’ turns into a crucial paradigm for the critical reception of exposed concrete in the second post-war period, remaining anchored to a vision of technical perfection, expressed by the material itself. ‘Where the functional conception is projected into the external appearance, concrete is used in a manner suitable for the material’, continues Hofmann, confirming the indissoluble influence of the functionalist culture that contaminates the vision of the material.⁶

However, other components – derived from a cultural dimension aimed at overcoming the simple technique – contribute to turn this trajectory of strong functionalist character into a more complex affair. Concrete takes on the appearance of a material shaped by the ‘special feeling for precision, for economy, hygiene and democratic simplicity’ that Max Bill attributes to Swiss architecture between the 1920s and 1940s.⁷ In the malleability of reinforced concrete exemplified by Robert Maillart’s structures, Bill identifies the apex of the search for a primarily cultural synthesis between an ‘intensity of technical expression’ and an aesthetic vision,⁸ resulting in a ‘beautiful fluidity’ expressive of the material’s nature and economy of construction, as declared by Maillart himself.⁹

The aspiration to the ‘democratic simplicity’ that innervates the vision of concrete finds confirmation in the particular geographical condition of a territory to be structured. It is the great tradition of infrastructural engineering that lays the foundations for a Swiss identity. Switzerland is perceived as a pioneer in its use of reinforced concrete, which appears in all its great power in the colossal dams in Wäggitäl and Valais, in bridges and roads, and factories and hangars, building up an imagery supported also by travelling exhibitions such as *Hundert Jahre Eisenbeton* (fig. 1), organized in 1950. These engineering works demonstrate a daring use of reinforced concrete and reveal its potential impact on form. This is at the expense of architecture, which expresses, according to the organizers, more



1. Poster by Richard Paul Lohse for the exhibition ‘100 Jahre Eisenbeton’ at the Kunstgewerbemuseum in Zurich, 1950.

conventional traits, of which only the works of Karl Moser constitute an exception in the Swiss territory.¹⁰

Despite the quest to overcome the abstraction of Neues Bauen, in the early 1950s, concrete is still made ‘socially acceptable’, as it is hidden by layers of plaster or other materials, according to what Alfred Roth regretfully calls an ‘Angst vor der Fläche’, or ‘fear of the surface’, intended as visible material.¹¹ However, in the slow process of a desired renunciation of cladding, it is not the artistic expression of the material that is sought, but a controlled and precise nature. ‘Is there anything more powerful and more beautiful than the clearly precise, well-proportioned surface?’ asks Roth, invoking not a compositional ‘modulor’ but a ‘module’ of construction science, or rather a scientific variable able to concretize what he defines as the ‘beauty of rational construction’ associated once again with Maillart’s bridges, thus confirming them as an essential reference for architectural culture.¹²

The role of these ‘pioneers’ in the engineering use of concrete emerges as the decisive Swiss cultural trait in various international commentaries, to the point that even Louis Kahn recognizes how in Switzerland ‘concrete is asserting itself as a material of beauty born of necessity and economy’.¹³ The shapes of the avant-garde bridges of Maillart or the large parabolic vault of the Vevey market (1933–35) by Schobinger, Taverny, Getaz and the engineer Sarrasin return to the international scene in the 1950s to demonstrate how material economy and precise structural research can aspire to an architecture capable of reducing ‘to rational terms that controversial structural material – reinforced concrete.’¹⁴

The vision informed by the ‘rational’ use of concrete translates into the search for a unity of material and structure, and based on a construction process that economises on framework construction, as George Everard Kidder Smith observes in his fresco on Swiss architecture, in which he notes how ‘concrete is the most important structural medium.’¹⁵ Exposed concrete, in buildings such as the institutes at the University of Berne by Otto Rudolf Salvisberg (1928–31) or the church in Zurich-Altstetten by Werner Max Moser (1939–41), demonstrate the achievement of a monolithic structure, which admits other materials only due to war-time restrictions, as observed in Dubois & Eschenmoser’s Saurer factory in Arbon (1943–46): ‘When the war broke out in 1939, and even this material became more and more scarce, the solid concrete building disappeared. It was replaced by the concrete frame with brick infill.’¹⁶

In September 1952, while the two large Swiss dams of Mauvoisin and Grande Dixence are in construction, a committee of the Société suisse des ingénieurs et des architectes visits the major infrastructure works in the United States – the same that had inspired Le Corbusier to uncompromisingly embrace the *béton brut* technique.¹⁷ The colossal concrete casting is admired for its bold aesthetic, monumental impact, and the care and precision of its surface – ‘very meticulous and smooth, but without cladding’.¹⁸ The use of exposed concrete for infrastructure turns the material into a synonym for Swiss engineering and technological progress. The dams appear as an example in this sense, and are among the rare works listed by Max Frisch to convincingly demonstrate the ability to redeem,

through a quest for monumentality, a certain nostalgia and intimacy which otherwise would render Swiss architectural culture ‘serious, so serious’, confined within an obsession for an ‘exclusively material perfection’, stuck in an ‘over-proliferation of detail’ until it fades into ‘monotony’.¹⁹

The emancipation from a restricted vision focused on details is for Frisch not achieved through the experimentation of new forms or materials, but through the territorial planning envisaged in the radical proposal of a satellite city that can accommodate up to 15,000 inhabitants – generated by rapid mobility and developed upwards thanks to prefabrication systems that he will describe in 1954 together with Lucius Burckhardt in the book *Achtung: Die Schweiz*, published in 1955.²⁰ The ‘moderation’, ‘compromise’, and ‘cabinetmaking architecture’ that Frisch attributes to the Swiss culture of the 1950s are the cultural legacies preventing the affirmation of a ‘radical’ vision.

The Swiss Reception of Le Corbusier’s *Béton Brut*

A profound renovation of Swiss architecture takes place concurrently with Le Corbusier’s most important works in the second post-war period, capable of raising decisive questions on the implications of concrete – its form, structural development, and finishing. The concerns raised by Swiss architects and critics are reported in the *Œuvre complète*, in which Le Corbusier accuses his fellow citizens of not being able to grasp the pure and brutal manifestation of the material: ‘How often visitors (particularly the Swiss, the Dutch and the Swedes) have said to me: “Your building is very beautiful, but how badly it has been executed”.’²¹

Although the Unité is appreciated as a new model of ‘habitat’, in sociological and urban terms,²² the acceptance of its materiality is hampered by the search for an obsessive perfection. As Hans Girsberger, the Swiss publisher of the *Œuvre complète*, consciously acknowledges: ‘The Swiss love too much a meticulous, careful execution to overlook certain defects and to be able to measure the “beauté du béton brut” as Corbusier sees it.’²³

Even when, at the end of the 1950s, *béton brut* finds acceptance as a successful technique (now considered Le Corbusier’s ‘signature’²⁴), its conception still appears to be subjugated to the functionalist myth of the Neues Bauen. This can be observed in the case of the administrative building of the Mutuelle Vaudoise (1952–56) in Lausanne by Jean Tschumi, in which the perfectly controlled exposed concrete transmits a feeling of structural lightness.²⁵ The *noblesse* of the *béton brut* is expressed by Tschumi through the precise execution of the sharp edges and through the careful composition of the compound, with white cement and light Vulion sand making it similar to limestone.²⁶

It is not only the concrete finishing that raises concern, but also its plasticity of form, as in the case of the Ronchamp chapel. Here Roth identifies the genesis of a ‘form-Anarchism’ opposed to the certainty of the skeleton of Miesian absolutism, and the symptomatic outcome of a deviation from the founding principles crystallized in the ‘five points’.²⁷ Beyond its material and crafted

components, Ronchamp is read by the editorial staff of *Bauen + Wohnen* as the apex of the curve's formal potential, whose origin is once again traced into the purity of the surface of the thin concrete shells, derived from a profound reflection on material economy and structural efficiency.²⁸

The tendency to see in *béton brut* the traits of 'unique' workmanship and the values of a 'noble' technique²⁹ – adapted in the name of perfection – evolves at the end of the 1950s into a different attitude, which leads to an excess of constructive and logical factors. The combination of concrete's 'rational' component – as described by Roth – and the Corbusian vision, generates a new form of *béton brut*, derived from the tension between construction site economy and perfection, capable of admitting a certain degree of controlled roughness.

Béton brut, subordinated to a pragmatic logic, is reflected in the proposals of Atelier 5 and in particular in Flamatt 1 and in the Siedlung Halen, presented for the first time on the occasion of the exhibition *Elf Architekten stellen aus* organized by the Bernese gallery Klipstein & Co in March 1956.³⁰ The works on display testify to the birth of a new sensibility that goes beyond perfectionism and measured, controlled detail.³¹ This new attitude to imperfection is supported by some critics, who free the interpretation of *béton brut* from an obsession with technical and economic principles – consolidated in the general debate. Critical reception of concrete opens up to an artistic vision, as demonstrated by Silvia Kruger, who finds in the strong and primordial character of matter the nineteenth-century myth of Michelangelo's *non finito*.³²

The admission of a certain degree of imperfection in the concrete finishing is, however, devoid of the conceptual declinations implicit in Le Corbusier's experiments on 'unexpected' and 'unintended' effects. Instead, *béton brut* becomes an instrument through which humanistic components can be investigated; the surface, marked by 'judicious' proportions and finally stripped of its 'expensive' cladding reveals the 'nobility' of the material. As Dolf Schnebli observes in regard to Le Corbusier's works in Chandigarh: 'As we contemplate Le Corbusier's constructions, we realize to what extent concrete loses its force of expression when covered in all kinds of costly cladding, as is the case for most construction in Switzerland.'³³ The 'rational' meaning of concrete thus evolves from the vision linked to Roth's abstract surface to an invitation to a new construction site economy. 'It would be as absurd', precises Schnebli, 'to criticize the imperfections in the concrete of these constructions as to be surprised by unevenness in the rough-stone surface of a masonry wall.'³⁴

The concepts Le Corbusier associated with the ability of concrete to become a transcription of a sometimes unwieldy and crude gesture – sublimating the defects intrinsic to *béton brut*'s 'nobility' – are interpreted by Swiss culture in a technical process oriented to economic and expressive simplicity. Indeed, *béton brut* becomes an expression of an extreme form of construction, as in the case of George Brera's Villa Maier in Coligny, where the 'authentic' technique of *béton brut* is functional to the graphic transcription of the different structural behaviour of the load-bearing and infill walls.³⁵

Construction and Form, or Ethics and Aesthetics?

The theoretical issues present in international debates about the affirmation of exposed concrete remain marginal in Swiss publications. Only from 1958, when Franz Füg becomes editor of the magazine *Bauen + Wohnen*, do various critical positions begin to take shape, which measure, on the one hand, the masters' legacy and the essence of 'modern architecture', and, on the other hand, the question of form and construction.

The desire of Swiss critics to not attribute – to the vision of concrete – values defined in the contemporary debate is reflected in a striking silence on the definition of New Brutalism, which is occasionally employed only to confirm the distance from an intellectual discourse and the total rejection of any labels. The definition of New Brutalism can only lead to an exclusively superficial and formal interpretation of architecture according to Füg: 'Stock phrases and catch-words are insidious.'³⁶ Swiss critics agree in seeing the definition of New Brutalism as an obstacle for critical objectivity. 'Unfortunately, the word "brutalism" which designates a direction in architecture, is quite literary and produces emotions that complicate objective appreciation,' is *Bauen + Wohnen's* comment on the issue on New Brutalism by the Italian review *Zodiac*, defined not without perplexity as 'an architecture magazine for which words are more important than images'.³⁷ When the critics – all coming from a pro-Germanic epicentre, such as Benedikt Huber – accept the category of New Brutalism, the latter is used to describe what is already consolidated in the international debate, and therefore confined to the British context and the works of Le Corbusier and Vittorio Viganò. Indeed, the definition of New Brutalism is not extended to include some Swiss buildings with a similar appearance, also characterized by the use of the 'untreated, massive, unfinished' concrete.³⁸ The worn-out feeling of the style that Huber ascribes to the Swiss architectural culture of the 1960s explains the reason why the definition of New Brutalism is carefully avoided, even if, when discussing the works of Walter Förderer, Ernst Gisel, Lorenz Moser, Werner Gantenbein, and Wolfgang Behles, parallels are drawn with themes already ascribed to the definition of New Brutalism – such as *tachisme* and Action Painting, or the admission of the category of chance and the irregularity of form.³⁹

The increasingly strong reference to Le Corbusier's work – identifiable in Jacques Schader's Kantonsschule in Zurich (1954–60) or in Fritz Haller's Schulhaus Wasgenring in Basel (1953–55), and in the Siedlung Halen of Atelier 5 (1955–61) – is recognized by the German critic Jürgen Joedicke in *Bauen + Wohnen* as a Swiss stance against the inevitability of technique and the predestination of form, demonstrated through structural accentuation and the building's inclusion in the urban tissue. Joedicke's willingness to not align Swiss examples to the international experiences of New Brutalism seems justified by a particular Swiss attitude: 'The Helvetic mentality is such that it only welcomes the unusual with caution.'⁴⁰

When in 1963 editorial staff at *Bauen + Wohnen* decide to republish Le Corbusier's position against the definition of New Brutalism, their choice is

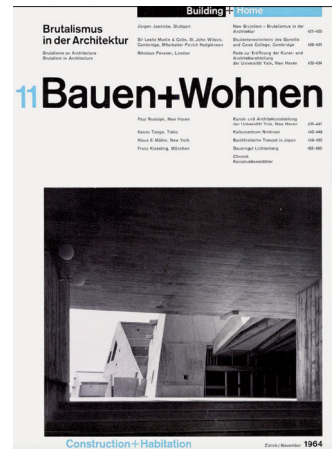
symptomatic of the rejection of its intellectual elaborations: “Brutaliste” is an Anglicism. Like “versatile”, which in English means many-sided capacity, wealth. In French, however, “versatile” (unreliable) has a highly pejorative meaning. I have employed rough concrete, “béton brut” (rough = brut). The outcome is a hundred-percent fidelity to the material, a perfect precision in casting, a building material that cannot lie [...] The rough concrete says: I am concrete!⁴¹

Once again the review *Bauen + Wohnen*, despite an initial lack of interest in the issue of New Brutalism, becomes, thanks to Joedicke’s contribution, a protagonist and vehicle for the affirmation of that definition at an international level. Indeed, in November 1964, the review publishes a monograph issue entitled *Brutalismus in der Architektur*⁴² (fig. 2). This decisive change is consequent to the appointment to the editorial staff of Joedicke, who, since November 1962, has been in contact with Reyner Banham about the publication of the book *New Brutalism: Ethic or Aesthetic?*⁴³ The monograph on the theme of New Brutalism is conceived by Joedicke as an anticipation of Banham’s book, which outlines a decisive balance on the origins and current developments of New Brutalism and its international manifestations in the United States, England, Germany, and the Netherlands (fig. 3). Surprisingly, no Swiss case is included in the examples described, although Joedicke had already compiled a list of buildings to illustrate Banham’s book, including works by Atelier 5, Förderer, Otto, and Zwimpfer.

In Banham’s book, the Swiss examples play a crucial role in documenting the international agenda and the extension of New Brutalism, demonstrating its complexity and aporia. Banham identifies in the ‘Swiss school’ one of the cores of the Brutalist style, which finds its epicentre in the works of Schnebli, Förderer, Otto, Zwimpfer, and Atelier 5. It is precisely in the Swiss school that Banham sees the reiteration of Corbusian figures that lead to the question of style, from which his major ‘disappointments’ derive: the academic declination of New Brutalism and the reduction of the phenomenon’s complexity to ‘just an affair of exposed concrete.’⁴⁴

The Swiss school therefore ends up representing, according to Banham, the ‘excesses’ of the Brutalist style in the most exasperated forms, ranging from the ‘mannerism’ of the Haus in Rothrist and the factory in Thun (both by Atelier 5) to Schnebli’s ‘eclectic and historical approach’ and an ‘extremism’ recognized in Förderer, Otto and Zwimpfer’s school in Aesch, guilty of reducing architecture to a play of sculptural forms.⁴⁵

The culmination of the Brutalist-style phenomenon, defined by Banham as a ‘high-period of concrete Brutalism’, is materialized in the ‘habitat’ of the Siedlung Halen, which shows how an ethical impulse can come to life again in the ‘brut’ and ‘heroic’ aesthetics of exposed concrete. The photograph taken by Albert Winkler of the Siedlung Halen rising above the trees, is selected by Joedicke – according to Banham’s critical reading – for the cover of the book *The New Brutalism: Ethic or Aesthetic?* (fig. 4) Although in the Siedlung Halen Joedicke identifies a possible synthesis between ethical impulses and aesthetic factors – aiming to solve the dilemma posed by Banham in the book subtitle – for Banham, instead, the cover ‘does not seem to typify the content of the



2. Cover of *Bauen + Wohnen*'s monograph issue on Brutalism, November 1964.



3. Jürgen Joedicke, advertisement for the book *Brutalismus in der Architektur* in *Das Werk*, September 1966.



4. Cover of Reyner Banham's book *Brutalismus in der Architektur*, 1966.

book.⁴⁶ Banham's perplexities show that his vision of New Brutalism diverges from the example of the Swiss school, in which he sees the end of a phenomenon consumed in a triumph of styles, redeemable only through a technological accentuation of the mechanisms of the project.

The response of Atelier 5 members is indicative of a typically Swiss attitude of resistance to any style category. Indeed, when the publishing house Krämer Verlag requested their photos of the Siedlung Halen, they replied: 'As for the New Brutalism book, we cannot decide to participate. Hence, I would like to ask you to take our buildings off the list. In our works, we hardly ever cared about the idea of Brutalism. Even if some buildings may suggest it, the reasons are elsewhere, e.g. in limited building costs that dictate the choice of material.'⁴⁷

Following the forced inclusion in the historiographic construction of Brutalism, Atelier 5 outline their position in a typescript document entitled *Sichtbeton*, which demonstrates how exposed concrete, beyond any style, corresponds to a radicalism linked to pure construction, confirming once again the concept of rationalism permeating the matter: 'The terms beauty and clarity are related to one another. A condition for clarity in building is visibility of construction. To judge whether a house is good or bad, you want to know how it is made. Exposed concrete is therefore not the name for a special surface treatment, but is visible concrete construction.'⁴⁸ In the document, the reasoning of Atelier 5 on monolithism, on the value of traces of casting phases and the transformation of the surface over time, and on the liquid nature of the material, which can be moulded at will, converge into a vision constantly renewed within the limits of an strictly economic principle: 'The restrictions come from economy: with as little material and formwork as simple as possible.'⁴⁹

Concurrently with the release of *The New Brutalism: Ethic or Aesthetic?* a manual is published in Zurich, which can be considered the Swiss antithesis to Banham's book. Written in 1966 by engineer Walter Häberli, *Beton, Konstruktion und Form* becomes the herald of a vision of concrete restored to its essential foundations of construction and form, with its techniques and components (fig. 5). Concrete is seen as a material derived from an engineering science attentive to its expressive potential and formal issues, in order to redeem the material from the conceptual and ideological structures pervading it.⁵⁰ *Beton, Konstruktion und Form* confirms a cultural vision of exposed concrete, devoid of any issues related to style, anchored instead in construction site practices. In the name of a 'Sichtbetonkult',⁵¹ at the end of the 1960s, concrete is still there to demonstrate how – as summarized by Stanislaus von Moos and Jul Bachmann – 'the force of present Swiss architecture lies in its close combat with reality, rather than the theoretical field, in technical and construction experience rather than creative speculation and imaginative outlooks.'⁵²



5. Cover of Walter Häberli's book, *Beton, Konstruktion und Form*, 1966.

Notes

- ¹ Alfred Roth, 'Zeitgemäße Architekturbetrachtungen. Mit Besonderer Berücksichtigung der Schweizerischen Situation', *Werk* 38, no. 3 (1951), 65–76.
- ² Alfred Roth, *La Nouvelle Architecture: présentée en 20 exemples = Die Neue Architektur = The New Architecture* (Erlenbach-Zürich: Les Éditions d'Architecture, 1946), 8.
- ³ John Summerson, 'Swiss Architecture in London', *The Listener*, 26 September 1946, 412–13.
- ⁴ Hans Hofmann, 'Thoughts on Contemporary Architecture in Switzerland', *Switzerland Planning and Building Exhibition* (Zürich: Orell Füssli, Arts graphiques SA, 1946), 19–23. Repr. 'Wo Steht die Schweizerische Architektur Heute?', *Schweizerische Bauzeitung* 65, no. 13 (1947), 166–170.
- ⁵ *Ibid.*, 20.
- ⁶ *Ibid.*
- ⁷ Max Bill, 'Introduction', in *Moderne Schweizer Architektur: 1925–1945 = Architecture moderne suisse = Modern Swiss Architecture* (Basel: Verlag Karl Werner, 1949).
- ⁸ Max Bill, *Robert Maillart* (Erlenbach-Zürich: Verlag für Architektur, 1949). See, in particular, the chapter 'Der Künstlerische Ausdruck der Konstruktion', 27–30.
- ⁹ Robert Maillart, 'Aktuelle Fragen des Eisenbetonbaues. Gestaltung des Eisenbetons', *Schweizerische Bauzeitung* 111, no. 1 (1938), 1–4; reproduced in Max Bill, *Robert Maillart* (see note 8), 15–16.
- ¹⁰ Berchtold von Grünigen, 'Vorwort', in *Hundert Jahre Eisenbeton*, exhib. cat. (Basel: Gewerbemuseum of Basel, 19 March–30 April 1950), 1–2.
- ¹¹ Roth, 'Zeitgemäße Architekturbetrachtungen' (see note 1), 74.
- ¹² 'Gibt es etwas Kraftgespannteres und Schöneres als die klar umrissene, wohl proportionierte Fläche?' (*Ibid.*, 75).
- ¹³ See Louis Kahn, *Preliminary Report on Housing in Israel*, 7 June 1949, cited in Roberto Gargiani, *Louis I. Kahn: Exposed Concrete and Hollow Stones, 1949–1959* (Lausanne: EPFL Press, 2014), 24.
- ¹⁴ 'Swiss Architecture', *The Architect and Building News*, 20 September 1946, 170–72, here 172. See also 'Not to Miss', *The Architect's Journal*, 26 September 1946; Edward Passmore, 'Swiss Architecture', *The Builder*, 27 September 1946; 'Swiss Architecture Exhibition', *National Builder*, October 1946.
- ¹⁵ George Everard Kidder Smith, *Switzerland Builds: Its Native and Modern Architecture* (New York: Bonnier, 1950), 86.
- ¹⁶ *Ibid.*
- ¹⁷ Mardges Bacon, 'Le Corbusier and Postwar America: The TVA and Béton Brut', *Journal of the Society of Architectural Historians* 74, no. 1 (March 2015), 13–40.
- ¹⁸ 'Voyage d'étude de la S.I.A. aux États-Unis, du 20 août au 14 septembre 1952', *Bulletin d'information de la Société Suisse des Ingénieurs et des Architectes* 79, no. 3 (June 1953), 42–45 (supplément à *Bulletin technique de la Suisse romande* 79, no. 13, 1953).
- ¹⁹ Max Frisch, 'Cum Grano Salis: eine Kleine Glosse zur Schweizerischen Architektur', *Werk* 40, no. 10 (1953), 325–29.
- ²⁰ Lucius Burckhardt, Max Frisch, and Markus Kutter, *Achtung: Die Schweiz. Ein Gespräch über unsere Lage und ein Vorschlag zur Tat*. Basler politische Schriften vol. 2 (Basel: Verlag Karl Werner, 1955).
- ²¹ Le Corbusier, *Le Corbusier. Œuvre complète 1946-1952, vol. 5* (Zürich: Éditions Girsberger, 1953), 191.
- ²² Alfred Roth, 'Der Wohnbau "Unité d'Habitation" in Marseille', *Werk* 41, no. 1 (1954), 20–24.
- ²³ Hans Girsberger, 'Zum Erscheinen des 7. und Letzten Bandes des Gesamtwerkes von Le Corbusier', *Schweizerische Bauzeitung* 84, no. 35 (1966), 625–27.
- ²⁴ 'Nef à trois Proues, triomphe du verre et du béton armé. Le Palais de l'Unesco affirme dans le site le plus classique de Paris l'audace des bâtisseurs modernes', *Habitation* 30, no. 1 (1958), 22–23.
- ²⁵ 'Bâtiment administratif de la Mutuelle Vaudoise Accidents, Lausanne', *Werk* 44, no. 3 (1957), 82–87.
- ²⁶ *Ibid.*
- ²⁷ Alfred Roth, 'Die Wallfahrtskapelle in Ronchamp', *Werk* 42, no. 12 (1955), 375–85.
- ²⁸ 'Am Rande. Machine und Architektur', *Bauen + Wohnen* 13, no. 9 (1959), 297.
- ²⁹ Maurer Fritz, 'Das Dominikanerkloster "La Tourette"', *Werk* 47, no. 6 (1960), 190–95.
- ³⁰ The participants in the exhibition, together with Atelier 5, are Alfred Gysin, Niklaus Morgenthaler, Werner Peterhans, Edwin Rausser, Rolf Siebold, and Rudolf Werder. *Elf Architekten stellen aus* (Bern: Gutekunst & Klipstein, 1956); 'Ausstellungen', *Bauen + Wohnen* 10, no. 5 (1956), 121.

- ³¹ Peter F. Althaus, 'Erinnerungen an die Anfangszeit des Ateliers 5 und das Projekt Halen', *Werk, Bauen + Wohnen* 67, no. 7/8 (August 1980), 16–17.
- ³² Silvia Kugler, 'Le Corbusier, "non finito" Architekt?', *Kulturelle Monatsschrift* 19, no. 4 (1959), 55–56.
- ³³ 'En contemplant les constructions de Le Corbusier, on se rend compte à quel point le béton perd de sa vigueur d'expression quand on le recouvre de toutes espèces de revêtements coûteux, comme c'est le cas pour la plupart des constructions en Suisse' (Dolf Schnebli, *Bulletin du ciment* 28/29, no. 12, 1960, 1–10, here 8).
- ³⁴ 'Il serait aussi absurde de critiquer les imperfections du béton de ces constructions que de s'étonner des inégalités de la surface d'une maçonnerie en moellons bruts' (Ibid., 7).
- ³⁵ George Brera, 'Villa à Coligny, Genève', *Werk* 46, no. 12 (1959), 429–34.
- ³⁶ Franz Füeg, 'Am Rande: Kristalline Architektur', *Bauen + Wohnen* 14, no. 12 (1960), 427.
- ³⁷ 'Leider ist das Wort "brutalism", das eine Richtung der Architektur bezeichnet, recht literarisch und erzeugt Affekte, die eine objektive Würdigung erschwert'; 'Zodiac ist eine Architekturzeitschrift, bei der das Wort wichtiger ist als das Bild!' ('Buchbesprechungen', *Bauen + Wohnen* 13, no. 10, 1959, 28.) The original article is by Alison and Peter Smithson, Jane Drew, and Maxwell Fry, 'Conversation on Brutalism', *Zodiac* 4 (1959), 73–81.
- ³⁸ Benedikt Huber, 'Epigonen', *Werk* 46, no. 12 (1959), 419–22, here 420.
- ³⁹ Benedikt Huber, 'Architektur des Zufalls', *Werk* 50, no. 7 (1963), 264–71.
- ⁴⁰ 'Die Mentalität des Schweizers verhält sich dem Außergewöhnlichen gegenüber abwartend.' (Jürgen Joedicke, '1930–1960', *Bauen + Wohnen* 15, no. 10, 1961, 360–73, here 362).
- ⁴¹ "Brutaliste" = anglicisme. Tout comme "versatile" en anglais, signifie multiplié, abondance, richesse. En français, "versatile" est un qualificatif très dépréciatif. J'ai employé du "béton brut" (en anglais: rough concrete). Résultat: une fidélité totale, une exactitude parfaite du moulage, un matériau qui ne triche pas. [...] Le béton brut dit: je suis du béton!' ('Am Rande: 5 Fragen an Le Corbusier', *Bauen + Wohnen* 17, no. 3, 1963, 95–96, here 96; English translation 96; original publication 'Cinq Questions à Le Corbusier', *Zodiac*, no. 7, 1960, 50).
- ⁴² Jürgen Joedicke, 'New Brutalism: Brutalismus in der Architektur', *Bauen + Wohnen* 18, no. 11 (1964), 421–25.
- ⁴³ Banham's book is published at the same time in German by Krämer Verlag and in English by the Architectural Press. Reyner Banham, *Brutalismus in der Architektur* (Stuttgart: Krämer Verlag, 1966).
- ⁴⁴ Reyner Banham, letter to Jürgen Joedicke, 5 December 1966 (Archive Krämer Verlag, Stuttgart).
- ⁴⁵ Banham, *Brutalismus in der Architektur* (see note 43), 90.
- ⁴⁶ Raymond Philp, 'Jacket for book "The New Brutalism"', letter to Nora von Mühlendahl, 25 August 1966 (Archive Krämer Verlag, Stuttgart).
- ⁴⁷ 'Was das Buch "Neuer Brutalismus" anbetrifft, können wir uns leider nicht entschliessen mitzumachen. Ich möchte Sie deshalb bitten, unsere Bauten von der Liste zu streichen. In unseren Arbeiten haben wir kaum jemals den Gedanken des Brutalismus gepflegt. Wenn einzelne Bauten den Anschein erwecken, so liegen die Ursachen anderswo, z.B. in beschränkten Baukosten die die Materialwahl diktierte.' (Rolf Hesterberg, letter to Heinz Krehl, 18 December 1964, Archive Krämer Verlag, Stuttgart).
- ⁴⁸ 'Eine Bedingung für Klarheit im Bauen ist Sichtbarkeit der Konstruktion. Um zu beurteilen, ob ein Haus gut oder schlecht gemacht ist, möchte man wissen, wie es gemacht ist. Sichtbeton ist deshalb nicht der Name für eine besondere Oberflächenbehandlung, sondern heisst sichtbare Betonkonstruktion.' (Atelier 5, *Sichtbeton*, typewritten document, Archive Atelier 5, Bern, 19 November 1968, 1–2, here 1).
- ⁴⁹ 'Die Beschränkungen kommen von den Oekonomie: mit möglichst wenig Material und möglichst einfachen Schalung.' (Ibid., 2).
- ⁵⁰ Walter Häberli, *Beton, Konstruktion und Form* (Dietikon-Zürich: Verlag Stocker-Schmid, 1966).
- ⁵¹ Friedrich Achleitner, 'Extreme, Moden, Tabus', in *Die Architekturabteilung der Eidgenössischen Technischen Hochschule Zürich, 1957–1968* (Zürich: ETH Architekturabteilung, 1970), 8–10.
- ⁵² Jul Bachmann and Stanislaus von Moos, *New Directions in Swiss Architecture* (New York: Braziller, 1969), 14.