**From ‘minimum dwelling’ to ‘functional city’: reappraising scale transitions in the early history of CIAM (1928-33)**

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## Abstract

In comparison to the historiographical interest in the founding meeting at La Sarraz (1928) or its fourth congress (1933), less attention has been accorded to the role of CIAM’s previous two congresses in Frankfurt (1929) and Brussels (1930) in shaping the organisation’s trajectory. This article offers a critical reappraisal of the these two congresses, and of the entire 1928-30 period, as a determinative phase in the history of CIAM. I suggest that this period mapped and sanctioned a transitional dynamics based on scale expansion (from dwelling to building to site to city) in CIAM’s field of analysis. It also produced – through clash and synthesis, success and failure, intention and chance - decisive path dependencies for the future direction of the organisation. I use the trope of ‘transition *from*’ – rather than ‘transition towards – to draw attention both to the dynamics unleashed by each of the two congresses and to the importance of what transpired in the intervening periods. I argue that CIAM2 and especially CIAM3 represent de facto ‘critical junctures’ that produced new directions of historical travel, generated reactive sequences to antecedent events, and supplied the intellectual and programmatic wherewithal for CIAM's subsequent leap into large-scale urban utopia.

**Keywords**: CIAM, urban planning, scale transition, city, minimum dwelling, high-rise architecture

This work was supported by **The Leverhulme Trust** under Grant **RF-2018171\5**.

## Introduction

With the ‘Charter of Athens’ CIAM (*Congrès Internationaux d’Architecture Moderne*) produced a radical manifesto that envisioned the modern(ist) city as a fully-ordered, scientifically planned and executed unit of urban design.[[1]](#footnote-1) More conventional earlier units, such as the street or the block, gradually lost their self-referential role in the organisation’s planning methodology and programme, as a result of ever-extending scales and more and more centralised patterns of architectural intervention.[[2]](#footnote-2) In this sense, the Charter consecrated this scale shift and re-directed the modernist gaze to wider horizons that were soon to be extended to even larger dimensional scales of space, height, and indeed time. In its wake, the image of the modernist city was canonised as a ‘functional’ unitary form, featuring high(er)-rise constructions, multi-scalar modular groups (building/slab, ensemble, neighbourhood, quarter, urban core, zone, region etc), and large-scale planning norms.

 The historiography of the so-called ‘modern movement’ and CIAM has come a long way from the earlier attempts to hallow CIAM4 and the ‘Charter of Athens’ as foundational moments in the history of twentieth-century modernism or conversely as the source of all that is wrong in the modern cityscapes of the twentieth century.[[3]](#footnote-3) Sigfried Giedion, CIAM’s general secretary, articulated such a schema on numerous occasions in the early 1930s and he restated it in the preface to José Luis Sert's publication *Can Our Cities Survive* in 1944:

{t}he CIAM began by investigating the smallest unit, the low-cost dwelling. It then proceeded to survey the neighbourhood unit found in urban settlements, and finally widened its scope to include an analysis of present-day cities, with suggestions as to what the approach should be in the attempt to solve the problems of human communities in our day.[[4]](#footnote-4)

In essence, what key CIAM figures and earlier histories of the ‘modern movement’ sought to articulate with the ex post facto mythologies constructed around CIAM4 was a partisan genealogy of the Charter as a revolution foretold at the first meeting of La Sarraz in 1928 and forged purposefully at the two intervening congresses (1929, 1930).[[5]](#footnote-5) This narrative depicted CIAM4 as *climax* of an alleged evolutionary continuum from the first to the fourth congresses; *and* a portentous *turning point* that set a new radical path for the history of modern architecture. The methodological tension between these two assumptions about CIAM4 is hard to reconcile: while the former points to linear continuity and unity of direction, the latter exaggerates the status of the fourth congress as a qualitative, paradigmatic turn that generated both ruptures with the past and powerful path dependencies for the future of modernist urban planning norms. In either case, however, they advance a narrative about the early years of CIAM that reduces the volatile chemistry between a plethora competing visions and forces within the organisation to a sequence of supposedly major junctures and minor moments.

 Criticisms of this reading as fanciful and contradicted by historical evidence are well-documented in the relevant historiography.[[6]](#footnote-6) Instead of presenting the Charter as the culmination of visions and intentions shared by the CIAM membership and the wider ‘modern movement’, another group of historians have suggested instead alternative genealogies that were notably less direct and continuous, less orderly and uniform, than originally suggested. These interpretations offered a much-needed corrective to the historiographical inflation of the significance of CIAM4, exposing a host of previously ignored or understated discontinuities in the history of the organisation. Yet, while restoring the focus on fiercely competing pluralities and on the role of contingent factors, they have done relatively little in terms of reappraising the importance of CIAM’s early congresses. This article aims to shift the analytical focus in two ways: first, from either La Sarraz (1928) or CIAM4 (1933) to the Frankfurt (CIAM2, 1928) and in particular the Brussels (CIAM3, 1930) meetings; and second, from an overwhelming emphasis on the congress events to a detailed analysis of the periods in-between that offers a richer, more dynamic picture of the competing ambitions, the pluralities, and the bitter conflicts within the movement. In so doing, I am not seeking to construct an alternative mythology centred on either CIAM2 or CIAM3; but I do suggest that the period from the La Sarraz to the Brussels gatherings sanctioned a dynamics of scale expansion in CIAM’s field of analysis and produced – through integration and rejection, success and failure, intention and chance - decisive path dependencies for the future direction of the organisation. I contend that this relarively short time span deserves to be re-appraised as a determinative phase in the history of CIAM. To do so, this article directs the focus equally to the documents and discussions generated by the CIAM congresses, to the minutes of the numerous preparatory meetings for CIAM2/3, and to the personal exchanges of key personalities of the organisation during the same period. While the former category of sources reveal the dynamics of *compromise* and *synthesis* between competing programmatic visions, the other two types of source material piece together a more granular and nuanced picture of the volatile, often impulsive dynamics that in the end shaped the early history of CIAM. They also serve as a constant reminder that the congress milestones reflected states of temporary, awkward equilibrium that, if viewed in isolation, obscure the significantly richer field of ambitions and conflicts which preceded and followed from them.

## Scale shifts and transitions in CIAM’s early history

The historiographical deconstruction of the previously canonical status of the ‘Charter of Athens’ - and of what became the itinerant CIAM4 itself – has supplied a host of new avenues for also reappraising the complex genealogy of fragments and facts that shaped CIAM’s earlier trajectory. It illustrated how the link between particular congress proceedings and the landmark programmatic declarations purportedly generated from them was at best an indirect and tenuous one. Therefore, what transpired, through contingency or design, in the intervening periods between congresses was shown to be at least as determinative of CIAM’s trajectory as the congress proceedings and official declarations. Competing pluralities, tensions, and discontinuities thus acquire a significant, if unintended, constructive function in the production of CIAM’s programme. The challenge, however, remains how to integrate all these components in an interpretive scheme that acknowledges but does not overemphasise the role of contingencies and takes into account path dependencies – whether intended or fortuitous - generated by past decisions or events.

 One way to approach the itinerary from La Sarraz via Frankfurt and Brussels to Athens is to view it as the product of a deliberate *experimentation* *with* *scale transition* – a more or less orderly path taken by CIAM members in their efforts to investigate collectively how to design modern cities on the basis of a rational modular scheme at ever-larger scales (from the individual dwelling via the neighbourhood to the city-wide plan) across four working conferences. The metaphor of perspective/scale shift seems especially apposite to the reappraisal of CIAM’s early history, plotting a delicate path between the contrasting methodological positions of purposeful continuity and contingency.[[7]](#footnote-7) CIAM’s preferred frame of analysis fluctuated throughout the three decades of its history - starting with the disaggregation of the building to its individual components, then venturing into ever-extending integrative frames of three-dimensional spatial analysis, before eventually retracting again to the particularities of smaller resolutions of space and time towards the end of the organisation’s life in the 1950s.[[8]](#footnote-8) The early shift of scale from the ‘minimum’ dwelling to the grouping of dwellings in buildings, sites, and finally the city as a whole appeared in retrospect to follow a logical, progressive trajectory.

Such scale shifts towards ever-extending frames of analysis were a trademark feature of the modern condition as a whole. Modernity brought about a dual parallel amplification of the frames of seeing and understanding the surrounding world, through both large-scale integration and disaggregation.[[9]](#footnote-9) The self-reflexive, often irreverent modern gaze questioned conventional modes of perception and sought to capture a kaleidoscope of new vistas by constantly zooming-in and -out. This led to a progressive disintegration of conventional spatial barriers and perspectives.[[10]](#footnote-10) In 1957, the Dutch educationalist Kees Boeke published an essay titled *Cosmic View: The Universe in Forty Jumps*, which offered a sequence of vistas, starting from a single photograph of a young girl and then proceeding first towards the cosmos and then back all the way towards the atom of a single cell in her body. Every resolution offered a very different perspective, every time revealing a host of new details, obscuring elements that were dominant in other scales, and dissolving conventional scale barriers. Boeke observed that, while each frame revealed a very different picture and perspective, it also underlined fascinating transitions and linkages from frame to frame, with all frames “connecting with each other and … joining together in one great whole” in the end.[[11]](#footnote-11)

 The two directions of the shifting *Cosmic View* and the connections between the diverse vistas that they reveal in each successive stage serve as a useful trope for discussing the shifts in CIAM’s exploratory gaze in 1928-30.[[12]](#footnote-12) We know how transformative for his architectural perspective the experience of flying over Brazil was for Le Corbusier in 1929. The aerial view confronted the architect with an expansive, previously unseen new frame of ‘bigness’ that conditioned his perception of space as a whole and pushed him more decisively towards seeking unity between architectural design and urbanism.[[13]](#footnote-13) At CIAM2 the decision to focus on the micro-scale of the single dwelling did not stop key actors of the organisation, like Gropius, from pressing for ever-larger scales of reference. The subsequent decision to focus CIAM3 on the rational development of *three*-*dimensional* *urban* space (building form, height, and siting) already represented a significant scale jump from the dwelling unit to building and land development as optimal units of design. But CIAM3 was not just about *a* scale of architectural analysis, like the preceding Frankfurt congress. In the build-up to the congress, CIAM’s executive group (*Comité International pour la Résolution des Problèmes de l'Architecture Contemporaine,* CIRPAC) had debated an ever more ambitious scale shift to the frame of the whole city as the fulfilment of one of the key components of the group’s founding La Sarraz declarations in 1928.[[14]](#footnote-14) Even if the idea was shelved in 1930, the Brussels congress ended up hosting discussions that spanned and collapsed multiple scales – from the unfinished business of CIAM2 on the ‘minimum dwelling’ to land management and high-rise residential architecture to urban density. Shortly after the conclusion of the proceedings in Brussels, the expanded urban scale emerged as the preferred template for the organisation’s fourth congress.

 Yet, while successive scale transitions did occur between 1928 and 1933, this does not mean that they were part of a deliberate longer-term plan, as Giedion and Sert asserted retrospectively and the canonising literature on CIAM4 took more or less for granted. In fact, accepting the trope of scale *transition* has its own share of methodological challenges. This interpretive scheme runs the risk of inventing path dependencies out of thin air, assuming too much hindsight about CIAM4 as destination. It imputes too much intention and hindsight into an otherwise volatile jumble of intervening meetings and personal exchanges that divulged anything but coherence and consistency. There is very little evidence pointing to a unity of vision and purpose that could explain how the initial deliberations at La Sarraz in 1928 led to the precise themes of the subsequent three organisational gatherings; or that the conclusion of one congress paved the way for an orderly transition to the focus and scale of the following one. The two congress themes in Frankfurt and Brussels (‘minimum dwelling’ and ‘rational land development’ respectively) were too specific and loosely unconnected to be easily integrated into a schema of wilful programmatic progression that somehow led to or culminated in CIAM4. Furthermore, the trajectories leading to CIAM2 in Frankfurt and then to CIAM3 in Brussels were every bit as complex and volatile as in the case of CIAM4. In line with recent methodological critiques of the transition paradigm in historical analysis, the terminology of ‘transition’ could reflect a bias towards a known historical outcome (the expansion of the focus to the urban scale at CIAM4) that was nevertheless far from pre-determined or consciously pursued in the preceding years.[[15]](#footnote-15)

 Nevertheless I believe that deploying the notion of ‘transition’ thoughtfully as part of an otherwise genealogical analysis of CIAM’s early history holds considerable promise. Using the tripartite scheme of opening-breakthrough-consolidation that is central to ‘transition’ analysis[[16]](#footnote-16) to indicate dynamics rather than neat stages of progression or fixed destination, the 1928-33 period may be revisited as a fraught but fascinating quest for a programmatic breakthrough without a clear, stable hindsight of an intended destination. Tempering the teleological assumptions of a ‘transition *towards*’ understanding allows alternative interpretations based on a ‘transition *from’* perspective. The latter explores how actions, reactions, and conditions generated from them could crystallise into critical junctures that both blocked or deprecated existing trajectories and opened new ones for the future. In this respect, CIAM3 was very different to CIAM2. The main challenge in planning the Frankfurt congress was to devise a suitable starting theme as an incentive for a broader international discussion about the programme and role of modern architecture – and, on a practical and symbolic level alike, to get the CIAM initiative off the ground and focus energies. By contrast, planning for CIAM3 was a significantly more complicated task since it also responded to the precedent of what transpired at the Frankfurt congress. Viewed from the analytical perspective, the short periods of time bracketed by the two congresses in Frankfurt and Brussels offer a fuller picture of the dialectics of agency and contingency in CIAM’s early history. This approach does not question the role of pluralities and tensions in the organisation but ascribes to them a creative force[[17]](#footnote-17) that repurposes transition as a non-deterministic interpretive scheme. It views congress events as de facto critical junctures partly because they produced or formalised directions of historical travel in a positive sense but also partly because they generated reactive sequences to antecedent actions and events.[[18]](#footnote-18) In addition, it draws equal analytical attention to the intervening periods between congresses as the primary field where these positive and negative feedbacks intersected and collided.

## The path to CIAM2: the individual ‘dwelling’ scale

The founding meeting of CIAM at the La Sarraz chateau in Switzerland in 1928 eulogised the need for a new overarching programme of architecture, based on rational design principles, a wholehearted embrace of new technological advances, and an emphasis on the ‘social’ role of modern architecture. Yet the declaration that was published at the end of the gathering resembled much more a mapping of issues than a well-defined roadmap for future action.[[19]](#footnote-19) ‘Urbanism’ did occupy a cardinal place in the final text, privileging the larger frame of the city as the most valuable unit of programmatic deliberation and action for the group; but the order of significance of its individual components was left wide open, no doubt also reflecting tensions and disagreements among the highly disparate group that was assembled at La Sarraz. Dwelling, which was to become the focus of the second congress in 1929, was identified as one of the three primary functions of urbanism. Meanwhile, the need for a rational development/division of land (the nominal title of CIAM3) emerged as a key component of the third thesis in the declaration, as was the idea that large-scale functional zoning (one of the main tenets of the ‘Charter of Athens’) had to be recognised as the fundamental guiding principle of the new urbanism that CIAM evangelised.[[20]](#footnote-20) To take, however, this enumeration of principles inscribed on the 1928 declaration as evidence of an already forming blueprint for future steps would be to confer ex post facto clarity of direction upon an otherwise impressionistic text produced through awkward compromises among those present at the chateau.[[21]](#footnote-21)

 The checkered path that led from La Sarraz to the second congress in Frankfurt attests to this. Minutes from the CIRPAC meeting held in Basel on 2 February 1929 illustrate how, beyond a broad understanding that housing ought to be the main focus of the congress, at that stage the CIAM executive group lacked a defined common agenda or sense of direction. They shared a vehement rejection of the norms and methods of ‘old {academic} architecture’ but were deeply divided along ideological, national, and personal fault lines. The eagerness of Ernst May, then chief municipal architecture of Frankfurt, to host the second congress in the German city provided a modicum of initial focus; after all, Frankfurt, along with Vienna, was a powerful exemplar of the ‘new’, socially-sensitive architecture, with an already impressive register of realised social housing projects under its name.[[22]](#footnote-22) At the Basel meeting, there was quick agreement regarding the broad scale of reference - the ‘*small* dwelling’ (*Kleinwohnung*) - but vigorous discussion as to the particular perspective to be adopted. The Swiss architect Hans Schmidt proposed a focus on the social dimension of the dwelling,[[23]](#footnote-23) an idea strongly supported by other members like Hugo Häring, secretary of the German Der Ring, and the Bauhaus-based Marcel Breuer. Le Corbusier, on the other hand, was instrumental in introducing the idea of defining the ‘minimum’ in dwelling design while also maintaining a larger-scale perspective based on the entire city, as he had done at the La Sarraz meeting. The concept of ‘urbanism’ was vigorously criticised by Häring as too all-encompassing and thus too vague as basis for discussion at the congres; but Le Corbusier stood up for its programmatic utility.[[24]](#footnote-24) May’s crucial conciliatory intervention in Basel, proposing a focus on the ‘smallest dwelling’ (*Kleinstwohnung*) as social right and also urging a consideration of its realisations, saved the discussion from a seemingly unavoidable impasse. The agreed congress theme included both the technical and the biological dimensions of the ‘small dwelling’, with a detailed presentation of May’s work in Frankfurt scheduled for the closing day of the proceedings.[[25]](#footnote-25)

 However, the choice of dwelling as the initial reference scale for CIAM’s work did not reconcile existing programmatic differences between members of the movement. Some delegates were strongly supportive of amplifying the frame of reference, using the dwelling unit as the starting point for extending the scale outwards - to the building form and to the entire domain of urban planning. Ahead of the Basel meeting, Schmidt and his colleague in the Swiss CIAM group Rudolf Steiger argued in favour of a broader discussion about the difficulties facing the realisation of the ‘new building’ programme in individual countries.[[26]](#footnote-26) Meanwhile, at the February 1929 meeting, Walter Gropius seemed keen to open up the focus to the building form as a grouping of dwelling units. By contrast, other delegates like the Belgian vice-president Victor Bourgeois and the Dutch (but then working in Germany) Mart Stam argued in favour of working backwards from the dwelling to its structures and requirements for its components - from the design of individual objects and rooms to the organisation of a set of rooms into a single dwelling to questions of surface and volumetric space, ‘respiration’ (air and light circulation), and new conceptions of domestic economy. What some members viewed as the optimal unit of analysis and design others countenanced only as a workable stepping stone to more important topics and ever-larger perspective scales.

 Once again, May’s influence as nous and host of the congress was crucial. He narrowed down the focus to the technical qualities of the ‘minimum’ dwelling and introduced the terminology of the *Existenzminimum* as the overriding functional norm of modern housing design.[[27]](#footnote-27) May was eager to move forward existing theoretical and technical reflections on the ‘small dwelling’ (*Klein-/Kleinst-wohnung*) beyond conventional efforts to merely reduce surface space and cut down construction costs and rents. The ensuing linguistic switch from ‘small’ to ‘existence minimum’ that occurred at CIAM2 and through the pages of May’s journal *Neue Frankfurt*[[28]](#footnote-28) was anything but trivial, for it signalled a re-ordering of priorities in housing design in order to privilege quality over construction cost- and time-savings. Starting with the robust definition of minimum-yet-optimal standards of life for the affordable but hygienic and dignified dwelling, May sought to work from the inside out. He defined the minimum surface for each unit by ensuring an optimal ‘dwelling ration’ for each member of the family and then sought to project the result outwards, as the all-important building block for the construction of a new kind of home, building, neighbourhood, and city. In so doing, he also saw the dwelling as the driver of profound social transformation and justice, forging a new modern individual, a new society based on community and solidarity, and a new conception of urban life.[[29]](#footnote-29) As a result, space and cost reduction were no longer deemed as absolute goals; May’s 'existence-minimum dwelling’ was small*er* and cheap*er* by virtue of its ability to meet enhanced biological and sociological standards of habitation more efficiently.

 Giedion’s private correspondence from 1929 discloses a troubled picture of organisational dysfunctionality, limited collaboration, and lack of clarity in the ranks of CIAM.[[30]](#footnote-30) In spite of all these adversities, however, the Frankfurt congress did provide the participants with the first full opportunity to engage in serious discussion about their respective individual and national priorities, problems, and aspirations with regard to modern housing. Keynote talks by May, Bourgeois, Gropius, Schmidt, and Le Corbusier (who was not present but represented by Pierre Jeanneret) stimulated discussion even as they revealed disagreements about the scope, purpose, and future of the organisation. May set the tone of the congress with his short opening address, defending the *Existenzminimum* concept and building programme in Frankfurt against criticisms concerning its emphasis on economies and its aesthetic effect on the cityscape. He used the metaphor of the dwelling as the vital ‘cell’ of modern architecture, calling for a re-orientation of the design process from the exterior to ‘the integral structure of each living cell based on the principles inherent in modern living’. But he also regarded the ‘minimum dwelling’ produced through this new thoughtful design approach as the elemental unit of a modern modular urban planning at diverse, complementary scales. Bourgeois spoke with meticulous detail about the technical standards of the ‘minimum dwelling’. He proposed a series of requirements and solutions for individual rooms (small kitchen but well-equipped with modern amenities, separate living/eating room for the family, small shower room for washing, side room for children); for healthy air and light circulation (speaking in detail about the window as a critical instrument thereof); for the optimal surface for the ‘dwelling ration’ (20m2 for one person, 35m2 for two people, and 10m2 for every extra person); for modes of efficient insulation and heating; and for what he called ‘household education’ (optimal use of furniture, rationalisation of the household process).[[31]](#footnote-31) In his in absentia address, Le Corbusier reflected on the importance of novel construction principles and methods that pointed to the urgent need for standardisation, industrialisation, and ‘scientific truth’.[[32]](#footnote-32) His motto of ‘air, sound, light’ as the most sound basis for design and construction decisions concerning the minimum dwelling underpinned his call for a ‘hermetic house’, impervious to humidity and dust. Schmidt dealt with the issue of state regulation of building, restating one of the principles of the La Sarraz declaration concerning the incompatibility between antiquated laws and current practices, on the one hand, and modern housing needs, on the other. Starting with the re-education of both constructors and users to the requirements of modern life, Schmidt echoed Bourgeois in calling for modern architecture as an inter-national and inter-professional domain of radical design and planning action.[[33]](#footnote-33)

 Still there were numerous indications of the speakers’ desire to inscribe dwelling into a wider scale of architectural intervention that extended outwards and upwards from the ‘cell’. Cautioning against a fragmentary approach that favoured displacement of the new housing groupings away from the existing city, May urged his colleagues to ‘integrate the sum of these living cells into the town plan’ and to pay particular attention to the interstitial spaces and the provision of adequate services for the new communities.[[34]](#footnote-34) In their addresses, Gropius and Le Corbusier converged on two key broader observations: first, that individual life was gradually giving way to - arguably superior - collective forms of urban living; and second, that a combination of sociological, technical, and economic factors presaged the substitution of the individual house-dwelling (the preferred element of traditional rural communities and garden cities) with higher-density modern alternatives (multi-storey/high-rise apartment houses).[[35]](#footnote-35) Bourgeois and Gropius spoke fervently in favour of basing the re-design of the modern dwelling on sociological foundations that took on board the profound transformation of the structures of modern family life.[[36]](#footnote-36) But it was predictably Le Corbusier who effortlessly switched the reference scale inwards and outwards from the dwelling frame, talking about the rise of the age of the machine, then changing perspective to talk about the problems of circulation of cars on an urban scale, before marshalling the aesthetic arsenal of functionalism against the legacies of decorative architecture and historicism.

 The lack of consensus surrounding the place of the dwelling in CIAM’s overall architectural programme became even more evident in the discussions that followed the keynote addresses. For example, May, Gropius, and Alvar Aalto drew attention to the elevated significance of the kitchen as the true ‘laboratory’ of the modern house - a small separate room that nevertheless held the key to the rethinking of the entire spectrum of daily functions of domestic economy and to the integration of the room components of the dwelling into a thoughtfully connected whole in spatial and psychological terms.[[37]](#footnote-37) This discussion echoed Gropius’s analysis of the rapidly changing dynamics of the relationship between individual, family, community, and the state, resulting in the relegation of ‘the importance of the family unit in the {modern} sociological picture’. He argued that the smaller size of the average family, as well as the increase in the number of divorces, childless couples, and people living alone presented architects with a new challenge to rethink the functions of the modern house in the context of a more collective organisation of life. He also touched on the key role of dwelling design in promoting the ongoing liberation of women from traditional house roles (and thus effecting profound changes in the spatial and functional requirements of the family house).[[38]](#footnote-38)

 But it was another argument in Gropius’s keynote that generated the most animated discussion. The Bauhaus founder used part of his talk to evince a strong preference for a form of collective living based on the housing type of the multi-storey apartment block as a superior alternative to individual family houses. Gropius’s conception of architectural space in this respect was already strongly three-dimensional, arguing in favour of grouping of dwellings in both vertical and horizontal scales. Throughout the 1920s, he and other architects like Peter Behrens, Ludwig Hilberseimer, Hannes Meyer, and Cornelis van Eesteren had embraced the opportunities offered by a three-dimensional approach to architectural design, showing how building in extended height scales could create fruitful tensions in the cityscape and articulate a strong image of urban modernity.[[39]](#footnote-39) At CIAM2, Gropius based his advocacy of vertical development not only on efficiency of construction and cost-effectiveness (thereby helping bridge the gap between cost of production and the average family income) but more importantly on its sociological and cultural benefits.[[40]](#footnote-40)

 Gropius’s excursus into the question of high-rise construction divided the delegates. Schmidt objected to the discussion as a matter of principle, arguing that it involved a very different scale of architectural resolution (*Stadtebau* - that is, unitary urban planning) to the one adopted for CIAM2 (the *single* dwelling). Members of the Frankfurt delegation (May, Hans Kampffmeyer, and Wilhelm Hagen), together with Häring, took issue both with the programmatic position expressed by Gropius and with his decision to insert it in his keynote against congress thematic guidelines. Using arguments that had for long been restated by supporters of the garden city (Kampffmeyer was also involved in the International Federation of Housing and Town Planning [IFHTP][[41]](#footnote-41)), they questioned the universal suitability of the tower block in modern urban housing design, especially for families with children. In spite of support from some delegates (for example, André Lurcat called for more floors to be added to the building form of the Frankfurt ‘minimum dwelling’), Gropius bowed to pressure and reluctantly agreed to retract this section of his report.[[42]](#footnote-42)

 The rest of the working sessions of the congress were devoted to extracting a set of design and construction guidelines for the ‘minimum dwelling’ derived from the reports of national delegations. This proved a formidable and frustrating task, however. Lack of clarity regarding the formation of national delegations; growing tensions between the German and the French groups;[[43]](#footnote-43) and problems with the distribution and collection of the two bespoke questionnaires prepared for the congress (one on the technical requirements of the ‘minimum dwelling’ and the other on existing regulations affecting construction)[[44]](#footnote-44) produced a limited and unsatisfactory set of data for consideration. In an attempt to find a compromise formulation that would be acceptable to delegates with markedly divergent ideological positions, the draft summary text of the Frankfurt congress ‘theses’ noted that the provision of mass housing could not be left entirely to market forces; it thus required the active involvement of public authorities in construction and funding. The ‘minimum dwelling’ was recognised as both emergency practical response to the crisis and sociological necessity in view of the rapidly changing contemporary patterns of life. The delegates rejected the idea that ‘minimum’ was a mere matter of dwelling size and usable surface areas. They recognised that some universally applicable minimum standards (about overall size and dimensions of individual rooms, internal configuration, equipment, insulation, heating, illumination etc) would be highly desirable due to ‘the proceeding equalisation of living demands and needs through modern economy and production’.[[45]](#footnote-45) Yet, beyond a muted and imprecise wishlist, the draft ‘resolutions’ text produced by the congress included no word on concrete standards and was omitted from the official CIAM2 publication that appeared in 1930.

## From CIAM2 to CIAM3: exploring scales in three-dimensional space

Even before the proceedings in Frankfurt, CIRPAC members had accepted that the following congress could not circumvent the broader urban scale. Giedion was prepared to countenance a discussion of urbanism in CIAM3 but was eager to convince key allies, such as Gropius, van Eesteren, and the rather elusive Le Corbusier, to become more closely involved in the preparations.[[46]](#footnote-46) A sense of disappointment at the conduct and outcomes of CIAM2 was palpable in Giedion’s private correspondence throughout the winter of 1930.[[47]](#footnote-47) In the light of the chaotic and inconclusive discussions on the ‘minimum dwelling’ at Frankfurt, it was agreed that the topic would be carried over one way or another to the next congress.[[48]](#footnote-48) Nevertheless the pressure to amplify the scale of reference beyond individual dwelling design continued to grow in the wake of CIAM2, rendering the choice of the next congress theme more and more contentious and complicated.

 Following Bourgeois’s invitation to host the next congress in Brussels, CIRPAC’s attention moved to the definition of the congress’s theme. At a preparatory meeting held in early February 1930, it was agreed to ‘expand and deepen’ the discussions regarding the ‘minimum dwelling’ in tandem with a separate consideration of ‘rational land development’. This awkward formula was based on a conciliatory proposal made by Le Corbusier in an attempt to mediate between a variety of different expressed propositions by Stam (focus on dwelling from a practical point of view), Schmidt (land development), and his own preference for a jump to the larger urban scale. In the context of this discussion, a proposal submitted to the meeting by the Belgian delegate Raphael Verwilghen merits attention for its thoughtful approach to negotiating and integrating different scales of architectural analysis, derived from his extensive portfolio of housing designs in Belgium. Verwilghen proposed a gradual shift in analysis towards a significantly higher urban resolution but only through a *modular* approach based on the idea of grouping one scale’s components into a new, larger spatial scale and defining clearly the respective ranges of each stage of grouping.[[49]](#footnote-49) He also suggested a three-stage structure for the forthcoming congress. The first two would relate directly to the ‘minimum dwelling’, featuring a comparison between historical and contemporary examples. The third stage would seek to propose a workable method for moving from the individual home to the urban scale by examining different groupings of dwellings in surface area, volume, and height.[[50]](#footnote-50)

 At the February 1930 meeting, Bourgeois dismissed Verwilghen’s proposed framework as impractical for CIAM3.[[51]](#footnote-51) However, pressure from within to redirect discussion to bigger programmatic questions did not dissipate. Gropius reaffirmed his desire to include the topic of high-rise blocks into the CIAM3 programme and proceedings.[[52]](#footnote-52) Giedion too was eager to complement the ongoing discussion of the ‘minimum dwelling’ with a consideration of stacking dwellings into high-rise building forms. Impressed by the report that the British architects Lancelot Keay (Liverpool’s chief architect) and his colleague H Rutherford had presented at a congress organised by the International Federation of Housing and Town Planning (IFHTP) in Rome in 1929, he pressed for the inclusion of the topic into the programme of the Brussels congress.[[53]](#footnote-53) He defended his proposal arguing that vertical construction was not a simple matter of either economic/technical feasibility or aesthetic preference; it touched on a number of more profound questions about land subdivision, outdated and unnecessarily restrictive building regulations, sociological patterns of collective living, as well as overall urban morphology.[[54]](#footnote-54) But it was a re-engaged Le Corbusier who had the most critical input in shaping the agenda of the Brussels congress and of the future direction of the organisation. Without losing sight of the broader urban frame that he was determined to promote in the medium term, he observed that jumping scales ‘before exhausting consideration of the cell {dwelling}’ would lead the congress to a cul de sac. Instead, Le Corbusier spoke of the importance of a *modular transition* from the micro to the macro scales: first, determining the usages of the dwelling; second, stipulating minima for surface, volume, height, and ‘respiration’; third, considering functions and services necessary for individual and family life; and finally projecting all these insights seamlessly onto the various clustering configurations of housing units as building, quarter, and so on.[[55]](#footnote-55) When the matter came up again at the May 1930 preparatory meeting, Le Corbusier observed that, however sophisticated and effective the methods and norms of modern architecture may have been, they could not be realised under the existing regulatory regime. Therefore, he concluded, a fundamentally new urban doctrine was desperately needed in order to open the way for the revolutionary changes envisioned by modern architecture. In further evidence of his growing hostility to suburbanisation and urban decentralisation (palpable in his already published plans for the ‘Ville Contemporaine’ and the ‘Plan Voisin’ for Paris[[56]](#footnote-56)), he called for a rational ‘urbanisation of the city centres in height and space’, with new typologies of high-rise housing stacks designed in close collaboration between architects and a wide range of experts from the economic, technical, sociological, and health professional fields.[[57]](#footnote-57)

 The chaotic build-up to the third congress transformed the programme into a confusing collage of disparate themes and sub-topics. Beyond high-rise residential blocks, the suggestion of a broader focus on land development and parcelling also gained steadily ground in the preparatory deliberations for CIAM3.[[58]](#footnote-58) A final decision for the programme was reached only in September at a meeting in Frankfurt.[[59]](#footnote-59) Under the main rubric of ‘rational land development’ (*Rationelle Bebauungsweisen* in German, *Lotissement Rationelle* in French), the congress would accommodate an extensive deliberation on the theme of ‘low-, mid- and high-rise buildings’; a review of the situation regarding the ‘minimum dwelling’ in participating countries, based on individual country reports to a special questionnaire;[[60]](#footnote-60) and a technical session on the benefits of sliding glass windows for insulation, air circulation, and illumination.[[61]](#footnote-61) An exhibition devoted to rational land development would accompany the congress, along with an iteration of the 1929 ‘minimum dwelling’ exhibition that formed part of the programme for CIAM2. A further special event titled ‘Days of the Minimum Dwelling’ would serve as a prelude to the congress, presenting an inventory of existing efforts and proposals for the future, with a special focus on initiatives from Belgium and the city of Frankfurt.[[62]](#footnote-62) [[63]](#footnote-63)

 In essence then, ‘minimum dwelling’, although still mentioned as one of the congress topics, had been largely eclipsed by the other two extended scales of the building form and land development. In his introduction to the Brussels exhibition, Moser presented this shift in focus and scale as a logical and thoroughly planned evolutionary step.[[64]](#footnote-64) Such an explanation misrepresented the haphazard genealogy of the third congress. In the first months of 1930, Giedion was privately despairing about the state of CIAM’s internal affairs. News that Moser had decided to resign the chairmanship shocked the members of CIRPAC. When they heard of Moser’s resignation, Giedion and Le Corbusier implored him to reconsider, staying even in the symbolic role of a ‘constitutional monarch’; failing that, they asked him to at least remain in position until the next congress in order not to cause irreparable damage to the movement. Giedion also feared that, in the vacuum left behind by Moser’s departure, the ‘secret war’ raging between key members of the group (he mentioned explicitly Le Corbusier, Stam, and May in this context) would tear CIAM apart.[[65]](#footnote-65) The seeming inability of the members to ‘agree even on fundamental issues such as a congress theme’ was particularly distressing to him. At some point in January 1930, he confided to Gropius that, unless such agreement was made possible through a modicum of cooperation, he would rather see the whole venture terminated.[[66]](#footnote-66) He fought on against the odds, against a backdrop of intensifying programmatic disagreements, personality clashes, and organisational problems[[67]](#footnote-67), ensuring that Gropius remained involved, cajoling Le Corbusier, mediating between the fiercely antagonistic members of the German delegation, stirring every possible national group into action. But in early August he admitted defeat: news that May and Stam, two key figures in the organisation of the Brussels congress, would no longer be able to carry out any preparatory work and would not even attend the proceedings convinced him that the event would have to be postponed by six weeks (from early October to late November).[[68]](#footnote-68)

 The crucial September 1930 preparatory meeting was the last attended by May and the other CIAM members in his ‘brigade’ (Stam, Schmidt, Forbat) before their departure for the Soviet Union.[[69]](#footnote-69) At that meeting, Stam’s seemingly insignificant criticism of the congress’s discussion of sliding windows as a ‘luxury’ item and therefore a distraction from the social goals of the modern movement[[70]](#footnote-70) belied the much deeper ideological divergence between CIAM’s executive group and the *Neue Sachlichkeit* members with outspoken Soviet sympathies. It was ironic that a prime driver behind Le Corbusier’s reorientation towards the broader urbanistic frame was his growing fascination with the experiments taking place in the Soviet Union in the late 1920s.[[71]](#footnote-71) At the Paris meeting in May 1930, he had praised effusively the Soviet officials and professionals for their revolutionary, yet entirely systematic, forensic, and grounded in scientific insights approach to urban planning. Giedion had worked hard to co-opt a Soviet delegation into the CIAM proceedings – even if his efforts to facilitate Soviet representation at either the Frankfurt or the Brussels congress came to nothing.[[72]](#footnote-72) CIAM’s fascination with the sweeping scale and programmatic ingenuity of the urban projects planned in the context of the first Five-Year Plan cut across ideological fissures inside the modern movement and added crucially to the momentum for a decisive switch to the urban scale of analysis. Le Corbusier came to a similar conclusion with the socialist members of CIAM - that the problems of housing and urban planning in the interwar period could not be solved without first effecting a profound transformation of the framework in which such problems were debated, understood, and addressed. This is where the consensus ended, however. Le Corbusier’s aestheticised *machiniste* vision had clashed from a very early stage in the history of CIAM with the far more ideologically informed and socially engaged perspective of the committed socialists within the movement.[[73]](#footnote-73) For the Swiss architect the revolutionary impulse would come from the norms, forms, and means of the new architecture that he championed. By contrast, CIAM’s socialist constituency viewed this proposition as merely a ‘palliative … but not a real cure’.[[74]](#footnote-74) The latter group believed that only through subsuming the modern architectural vision to the logic of a social revolution, such as the one then underway in the Soviet Union, could the new architecture realise its transformative potential. To Le Corbusier's ideologically dubious[[75]](#footnote-75) and post-political vision of a technological leap into the future,[[76]](#footnote-76) CIAM’s socialist members juxtaposed an inverted order of priorities and action: planning and building could only meaningfully follow from - and then actively promote - the radical remaking of the political and social system.

 Nevertheless the shock caused by the sudden departure of May’s ‘brigade’ and the resignation of Moser opened up new opportunities for CIAM’s transformation in both structural and programmatic terms. The desire of the key actors in the movement to promote a politically ‘neutral’, inclusive international partnership propelled Van Eesteren to the position of chairman. Van Eesteren ticked most important boxes. His approach to modern architecture reflected a thoughtful combination of analytical practice and visionary programme. His architectural vision and work illustrated a productive chemistry between the micro and the macro scales of the modernist architectural gaze, as well as between ‘utopian' ideas and ‘practical’ work.[[77]](#footnote-77) All these qualities were particularly appreciated by Giedion and Gropius, especially in the midst of CIAM’s intensifying organisational troubles and personal rivalries in 1930. Bourgeois, initially a strong contender to succeed Moser, lost ground in the succession battle. As the person charged with the overall preparation for CIAM3, he came under criticism in private for his handling of the congress's organisational matters. Furthermore, his decision to invest the bulk of his energy to the exhibition on 'minimum dwelling’ at the expense of the parallel event dedicated to 'rational land development’[[78]](#footnote-78) troubled Giedion, who saw it as evidence of Bourgeois's resistance to the extension of CIAM's working scale of analysis to encompass the larger urban frame.[[79]](#footnote-79) Such criticism was in many ways undeserved. In promoting the focus on the 'minimum dwelling’, Bourgeois was closely adhering to the original conception of CIAM3 as a thematic follow-up to CIAM2. Nevertheless, given the emerging consensus that CIAM’s scope of analysis should open up beyond the scale of dwelling, Van Eesteren was an obvious, dependable choice to steer the group through this transition, from among a limited pool of younger, programmatically open-minded members with demonstrated experience in urban planning.

## CIAM3 and beyond: the imagination of ‘large-scale planning’

In spite of Giedion’s fears to the contrary in the spring and summer of 1930, the Brussels congress did happen in the end. Proceedings began on 27 November 1930, after an introductory event at the Palais de Beaux Arts on the previous day and a visit to the exhibition on rational land development. Its chaotic preparation and thematic incoherence notwithstanding, CIAM3 produced a fascinatingly rich and sweeping panorama of ideas at arguably the most critical juncture in the history of the movement. In his address, Le Corbusier wasted no time in shifting his frame of reference from individual building types to formulas for large-scale site development, as well as the benefits of higher urban concentration and collective living. Noting a mismatch between the impressive technological development of the new *machiniste* era and the outdated current building and planning practices, he called for no less than a radical reorganisation of existing cities. The redevelopment of urban centres on the basis of higher density and concentration of functions, he argued, would pave the way for a new conception of collective living that satisfied the biological, sociological, and emotional needs of the modern human far more effectively and efficiently. Higher density could only be achieved productively through constructing significantly higher-rise buildings and then setting the new buildings on new vast natural sites for rest and recreation. Yet, for this radical plan to succeed and for any kind of modern urbanism to become operative, Le Corbusier claimed, a re-grouping of the land should be first promoted, erasing the traces of fragmentary property and replacing it with a rational model of collective land ownership.[[80]](#footnote-80)

 The keynote delivered jointly by Herbert Böhm and Eugen Kaufmann was the closest to the official theme of the session and to the congress’s attempt to fuse land development with affordable dwelling. The two Frankfurt architects provided a forensic examination of construction/ maintenance costs and respiration patterns for buildings types ranging from two to twelve floors, with examples drawn from already realised projects in Frankfurt.[[81]](#footnote-81) Their research showed that, while one-floor constructions were the most expensive and therefore unsuitable for the ‘minimum dwelling’ type, the cost benefits from buildings with six or more floors diminished rapidly with height (due to a number of extras required for this type of high-rise construction, such as elevators and complex central heating infrastructure). In addition, higher-rise constructions offered distinct disadvantages to particular population groups, such as families with children. In their opinion, the sweet spot of the height-cost equation was the 4/5-floor building in rows and individual ‘minimum’ dwellings of 40-42m2 surface space, with higher-rise alternative types for single inhabitants and families without children also advisable but only in the peripheral areas of big cities.[[82]](#footnote-82)

 Gropius’s address covered similar ground from a broader sociological perspective but reached very different conclusions. His starting premise was that the question of building height was not just a matter of cost or aesthetic preference but primarily of suitability for the sociological needs of the modern human being. In his view, both high- and low-rise buildings offered distinct advantages in particular circumstances, unlike medium-height alternatives that constituted an unsatisfactory compromise that offered few of the individual benefits and most of the disadvantages of the other two types. Gropius defended the high-rise type against conventional criticisms about its hygienic and biological limitations, arguing that it was the most suitable solution for modern urban living. Unlike Le Corbusier, Gropius did not dismiss the low-rise residential solutions outright. For example, he claimed that houses with garden offered ‘more quiet, more seclusion, more recreation facilities and living space in one’s own garden, and the easier supervision of children’. He was adamant, however, that conventional criticisms of high-rise dwellings - poorly lit, ventilated, unhygienic, lacking in recreational space - had little to do with the multi-storey dwelling form itself. The cause of the problem, in his view, was that ‘short-sighted legislation’ had allowed the construction of higher-rise tenements and blocks ‘to fall into the hands of unscrupulous speculators without adequate social safeguards’. The antidote was better design, increased site spacing between the high-rise buildings (from 1.5 to up to 3 times the height of the building), adequate provision of communal services, and new building regulations that would set limits on the basis of density and not height.[[83]](#footnote-83)

 On the following day, delegates considered twelve country reports on the ‘minimum dwelling’ question and listened to Teige’s summary reflections. Teige argued that ‘the housing shortage is not just the result of the absolute increase of population in the cities ... {but} the product of insufficient supply per se’. Yet constructing sufficient affordable houses could only be achieved through a radical transformation of the entire operation of the capitalist order and a parallel ‘qualitative revolution’ in patterns of living according to a wholesale collectivised template.[[84]](#footnote-84) This argument provided a scale and logic of analysis that, though of course shared by the remaining socialist members of CIAM, constituted a step too far for the rest of the delegates committed to a reformist but not socially revolutionary stance. Consequently it was toned down in the official summary of the congress’s findings. The delegates accepted that radical changes were needed in land management, building regulations, and financing instruments; and that new methods of construction should be actively promoted against the opposition of heritage organisations and those promoting outdated ideas of aesthetic beauty as a bulwark to modern functional design. The congress did stop short, however, of endorsing Teige’s wider critique of the liberal-capitalist system as the root of the housing problem and the fundamental obstacle to its resolution.[[85]](#footnote-85)

 When it came to the question of building typologies according to height, the official congress verdict was similarly muted. The delegates acknowledged that low-rise models were uneconomical from the point of view of the ‘minimum dwelling’ but noted that there was limited evidence regarding the universal suitability of the high-rise alternative to reach definite conclusions as to whether it should become the standard norm for the ‘minimum dwelling’.[[86]](#footnote-86) This formulation was nothing more than an awkward and anodyne compromise. It barely disguised the lack of consensus among congress keynote speakers and delegates regarding the benefits and demerits of the high-rise housing typology. This was hardly surprising - after all, even the far more programmatically homogeneous IFHTP – the evolution of Ebenezer Howard’s Garden City Association - had attempted to settle the issue at its 1928 and 1929 congresses but, in spite of the organisation’s default bias in favour of the single-family dwelling typology of the garden cities, failed to dismiss the suitability of vertical construction in urban areas.[[87]](#footnote-87) Nevertheless, the extensive discussion on building form according to height succeeded in one critical respect: by illustrating that the choice of building form was in itself subjected to wider forces, analyses, and programmes of action, it confirmed CIAM’s alignment with a broader scale perspective that subsumed 'minimum dwelling' and building typology, dwelling and site, under a holistic vision to urban planning. As the new president Van Eesteren put it, ‘only large-scale planning (*Großplannung*) brings {the desired} change’.[[88]](#footnote-88) This significant paradigmatic shift, conventionally associated with CIAM4, was actually rehearsed and legitimised, largely through trial and error, at the unsung Brussels congress.

 In many respects, CIAM3 could be read as a failure – of organisation, of clear and well-defined focus, of community spirit and programmatic unity among the ranks of the group, of detailed outcomes. Its proceedings made clear that the fascination with the ‘aesthetic of the scalar sublime’[[89]](#footnote-89) evinced in many presentations and deliberations at CIAM3 could no longer be contained even by the extended frame of ‘rational land development’ headlined in Brussels. The flexible ways in which the congress theme was interpreted by key CIAM figures such as Le Corbusier and Walter Gropius sanctioned the organisation’s orientation towards the larger architectural scale. More importantly, however, it foreshadowed the push for magnitude as paradigm for architectural analysis/design – spatial amplitude, uninhibited verticalism, and eventually a three-dimensional holism of spaces, forms, and volumes.[[90]](#footnote-90) Magnitude was all about a defiant celebration of ‘bigness’[[91]](#footnote-91) - finding the widest possible setting on the architectural zoom range that still allowed the framing of the contained space as a meaningful and manageable design unit. Viewed from this perspective, CIAM3 was less an incremental scale step from CIAM2 (from the single dwelling to groupings of the grouping of dwelling in buildings and the planning of buildings as site); and even less an intermediate jump along a supposed path towards the urban scale that became the theme of CIAM4. Instead it resembled an initial stress test that explored, essentially as trial-and-error, how far modern architecture could go in pursuit of programmatic ‘bigness’. The scalar leap from Frankfurt to Brussels illustrated a deeper methodological tension – between the search for the elemental unit of design that could be then scaled up effectively as part of a modular approach; and the quest for the largest frame that could be managed as a single unit of architectural design and then be broken down into a series of smaller design segments. The insights gained from the two congresses, together with a host of productive failures, cleared the path to what became evebtually the official consecration of the ‘big’ urban scale as CIAM’s favoured resolution and methodology of design.

## Conclusions: reappraising CIAM’s early history – and CIAM3

Retrospectively, Giedion praised CIAM3 as a vital exercise in mapping that all-important, previously uncharted ‘borderland’ (*Grenzgebiet*) between ‘cell’ (the elemental unit of CIAM2) and city (the theme of the then planned fourth congress in the Soviet Union).[[92]](#footnote-92) Hindsight aside, this was a fair longer-term judgement, not only of the Brussels congress but of CIAM’s critical early history from 1928 to 1930 as a whole. It might not have been possible to appreciate fully the practical and programmatic implications of what transpired at the second and the third congresses while still being in the middle of such fast-paced events. Neither CIAM2 nor CIAM3 individually appeared as ‘successful’ occasions at the point of their conclusion, even less so when viewed as an ensemble from the standpoint of late 1930. At that stage, the fledgling organisation was deeply divided and confused, undermined by a series of disagreements, changes of membership, and intense personal antipathies, searching for identity and a clear sense of future direction. It would only be from a longer-term perspective that the work of the two congresses – and crucially what transpired in the months that separated them – could be appreciated. The subsequent attempts by key CIAM members and of sections of the early historiography on modernism to extol the programmatic and symbolic significance of CIAM4 for the so-called ‘modern movement’ overshadowed earlier, formative events and periods in the history of CIAM. They also imputed undue intent, direction, and order to an otherwise disoriented early trajectory, largely shaped by frustration, negative feedback, and contingency. Yet, as this article has attempted to illustrate, the stymied ambitions and indeed failures of the 1928-30 period turned out to be productive, (trans)formative, and generative of a host of new possibilities for the immediate future of the organisation.

 From this point of view, I have argued that a balanced reappraisal of CIAM’s early years needs to avoid the excesses of (i) the ‘myth of {CIAM} continuity’; (ii) the notion of a profound paradigm shift at CIAM4; and (iii) the genealogical revisionism that has emptied the 1928-30 period of collective intent and direction. In attempting to strike this balance, I have suggested that the preparation for, debates at, and reactions to, CIAM3 are of critical significance. Unlike the La Sarraz meeting (the founding moment), the Frankfurt event (the first, celebratory working occasion) or the mythologised CIAM4, the third Brussels congress lacked any of the standard ‘history-making’ qualities. It was poorly organised, programmatically confused, riven by personal disagreements, frustratingly elliptical in its conclusions. Yet, far from being a minor, chaotic pit stop along the way to the much acclaimed fourth congress, CIAM3 emerged in the longer term as a significant programmatic critical juncture in the history of the modern movement, albeit by happenstance and trial-and-error than intent. The congress had graduated from a mere appendage to the unfinished business on the ‘minimum dwelling’ from CIAM2 to a standalone wild exploratory adventure, testing multiple scales and surveying how they could (or should) interface productively with each other. An expanded field of opportunities for architectural design on a truly ‘big’ scale emerged from the Brussels congress. Discussions before and during the congress charted a wealth of tensions and linkages between the cell (habitation) and the organism (urban planning). They exploded the pluralities hosted by the movement and the programmatic – as well as personal - conflicts that they fuelled. The maelstrom of CIAM’s first steps reached an unintended climax in 1930 – and CIAM3 served the quest for clarity and direction in the longer term by being disjointed, open-ended, multi-scalar in analysis, and largely agnostic in ideological terms in the short term. It is thus not surprising that, in stark contrast to his privately vented frustration with the way in which the Frankfurt congress had been conducted, Giedion was euphoric in the wake of the CIAM3 proceedings in Brussels.[[93]](#footnote-93)

 The congress also laid the foundations for the deeper scale transition to urbanism attempted at CIAM4 and beyond. This was not simply a case of progressively, forensically moving from the small to the large architectural scale via an intermediate stop. The quest for determining the preferred working frame belied a deeper search for the *maximum* *optimal* unit of design and planning. Le Corbusier noted at the congress that the real question posed was not so much whether vertical development was preferable from a biological and sociological viewpoint to other building height scales but whether a better future lay in expanding or reducing the surface of the city.[[94]](#footnote-94) Such a perspective opened up all sorts of new avenues for CIAM’s future works - from the technical forms of building in three dimensional space, building regulations, and construction practices to matters of urban density, the visual rhythm of the modern cityscape, and the fundamental reconceptualisation of modern urban living as a whole. In this sense, CIAM3 constituted an inversion of the approach attempted with CIAM2 – less specificity of focus; more emphasis on the ‘bigger’ picture and scale transitions/borderlands.

Still the importance of the Brussels congress can be fully appreciated only in conjunction with its preceding and its following events – and what happened in-between. CIAM2 had been largely shaped by the complex interaction between May's concrete Frankfurt experience, on the one hand, and Le Corbusier's and Gropius’s much broader programmatic agendas, on the other. As the former's influence started to wane post-CIAM2, the balance between smaller-scale practical focus and expansive large-scale vision began swinging towards the extended urban frame. In this respect, CIAM3 was the product of a quest for a formidable, unwieldy compromise - between the micro- and the macro-levels of architectural resolution, between the cell and the organism, in the end also between reformism and revolution. In theory, it left open both directions of travel in its wake (extending to the urban scale and retracting to the dwelling and its individual components). In practice, it released energies that made a scale jump to an expansive urban frame conceivable and possible. In this crucial sense, the short transition from CIAM2 to CIAM3 amounted to a fortuitous critical juncture that in the end supplied the elemental intellectual and programmatic wherewithal for CIAM's subsequent leap into large-scale urban utopia.

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1. Conrads, *Programs and Manifestoes*, 137-45; Gold, “Creating the Charter of Athens,” 243; Rabaça, “Le Corbusier, the City”; Sert, *Can our Cities Survive?* 249. [↑](#footnote-ref-1)
2. Panerai, et al., *Urban Forms*. [↑](#footnote-ref-2)
3. Sadler, “An Avant-garde Academy”, 34-7 [↑](#footnote-ref-3)
4. Sert, *Can Our Cities Survive*, x-xi. [↑](#footnote-ref-4)
5. Panerai, et al., *Urban Forms*, 110. [↑](#footnote-ref-5)
6. See, among others, Banham, *Theory and Design in the First Machine Age*; Ciucci, “The invention of the modern movement”, 554, 572; Mumford, *Defining Urban Design,* 1-18; Gold, “Creating the Charter of Athens”; Gold, *Experience of Modernism*, 58-77. [↑](#footnote-ref-6)
7. Little, *New Contributions to the Philosophy of History*, 8-10. [↑](#footnote-ref-7)
8. Gold, *The Experience of Modernism*, 209-33; Pedret, “CIAM: from ‘spirit of the age’”; Dainese, “The concept of ‘habitat’”. [↑](#footnote-ref-8)
9. Schnapp, “Crash (Speed as Engine of Individuation)”, 1-49; Griffin, “Modernity, Modernism, and Fascism,” 9-24; Hartmut Rosa, *Social Acceleration.* [↑](#footnote-ref-9)
10. Harvey, *The Condition of Postmodernity*, 284-307; cf. Simmel, “Sociology of the Senses”. [↑](#footnote-ref-10)
11. Boeke, *Cosmic View,* 7, 8. [↑](#footnote-ref-11)
12. Various, “Ideas and Practices for the European City”. [↑](#footnote-ref-12)
13. Boyer, "Aviation and the Aerial View”; Morshed, A. "The Cultural Politics of Aerial Vision”, 201-06; Jazairy, “Aerial Vision-Based Model of Urbanism”; Corner, Maclean, *Taking Measure across the American Landscape*, 16. [↑](#footnote-ref-13)
14. Ciucci, “The invention of the modern movement”, 558-66. [↑](#footnote-ref-14)
15. Kopecek, Wcislik, “Introduction: towards an intellectual history of post-socialism”. [↑](#footnote-ref-15)
16. Carothers, “The end of the transition paradigm”, 7. [↑](#footnote-ref-16)
17. Gold, *Experience of Modernism,* 57. [↑](#footnote-ref-17)
18. Mahoney, “Path Dependence”, 508-09. [↑](#footnote-ref-18)
19. Conrads, *Programs and Manifestoes*, 12-21. [↑](#footnote-ref-19)
20. Mumford, *The CIAM Discourse,* 24-27; Gold, “Creating the Charter of Athens,” 229-31. [↑](#footnote-ref-20)
21. Champy, “L’Engagement Des Professionnels,” 97-119; Gold, *The Experience of Modernism,* 57-60; Stoppioni, “Hugo Häring and ‘Der Ring’”; Jones, *Hugo Häring,* 106-09. [↑](#footnote-ref-21)
22. Panerai*,* et al*.*, *Urban Forms*, 107; Porotto, “Utopia and Vision,” 84-103; Blau, *The Architecture of Red Vienna,* 251-338; Kutting, “’Neues Bauen Für Neue Menschen?’”, 50-100; Heynen, *Architecture and Modernity,* 43-70; Rowe, *Modernity and Housing,* 128-44. [↑](#footnote-ref-22)
23. Huber, *Die Stadt des Neuen Bauens*, 26-8, 34-9. [↑](#footnote-ref-23)
24. Mumford, *The CIAM Discourse*, 25. [↑](#footnote-ref-24)
25. Protocol of the preparatory meeting in Basel, 2.2.1929: CIAM, 2-1-129, 1-14. [↑](#footnote-ref-25)
26. Mumford, *The CIAM Discourse*, 22. [↑](#footnote-ref-26)
27. May, “Die Wohnung für das Existenzminimum,” 210; Aymonino, *L’Abitazione Razionale,* 81. The German term *Existenzminimum* was often translated misleadingly as ‘subsistence dwelling’ in English. I use either the literal ‘existence-minimum’ or ‘minimum-yet-optimal’ as alternative translations. [↑](#footnote-ref-27)
28. Kaufmann, “Die internationale Ausstellung,” 210. [↑](#footnote-ref-28)
29. AA, “The Quasi-Nomadic Cell”. [↑](#footnote-ref-29)
30. Giedion to May, 30.4.1929 / Giedion to Gropius, 22.6.1929 / Giedion to Gropius 16.5.1929, : CIAM/K/Giedion 1929. [↑](#footnote-ref-30)
31. Bourgeois, “L’organisation de l’habitation minimum.” In *Die Wohnung für das Existenzminimum*, 38-42; cf. Protocol of the 24.10.1929 Session: CIAM 2-3-1, 1-2. [↑](#footnote-ref-31)
32. Le Corbusier, Jeanneret, “Analyse des éléments fondamentaux du problème de la ‘maison minimum’”. In *Die Wohnung für das Existenzminimum*, 28. [↑](#footnote-ref-32)
33. Schmidt, “Bauvorschriften und Minimalwohnung”. In *Die Wohnung für das Existenzminimum,* 43-6. [↑](#footnote-ref-33)
34. May, “Die Wohnung für das Existenzmiminum”. In *Die Wohnung für das Existenzmiminum*, 10-16. [↑](#footnote-ref-34)
35. See notes 24 and 25 respectively [↑](#footnote-ref-35)
36. Smets, *L’Avènement de la Cité-Jardin*, 148. [↑](#footnote-ref-36)
37. Protocol of the 25.10.1929 Session: CIAM 2-3-1, 13-15. [↑](#footnote-ref-37)
38. Gropius, “Die soziologischen Grundlagen der Minimalwohnung für die städtische Industriebevölkerung ”. In *Die Wohnung für das Existenzminimum,* 17-27. [↑](#footnote-ref-38)
39. Mumford*, The CIAM Discourse*, 20; Hays, *Modernism and the Posthumanist Subject*; Van Eesteren, *The Idea of the Functional City*, 23; McEwan, “Ludwig Hilberseimer and Metropolisarchitecture,” 1-15; Hake, *Topographies of Class,* 124-33. [↑](#footnote-ref-39)
40. Gropius, “Soziologischen Grundlagen”, 24-6. [↑](#footnote-ref-40)
41. On the IFHTP see Riboldazzi, *Un’altra modernità;* Geertse, “Cross-border country planning”. [↑](#footnote-ref-41)
42. Summary of the Proceedings of 24-25.10.1929: CIAM 2-3-1, 1-7. [↑](#footnote-ref-42)
43. Two letters by Giedion to Gropius, 16.5.1929: CIAM/K/Giedion 1929. [↑](#footnote-ref-43)
44. May to Moser, 30.10.1929: CIAM/K/Giedion 1929. [↑](#footnote-ref-44)
45. “Aufgabe und Verwirklichung der Minimalwohnung, 1929,” CIAM 2-4-32 DA. [↑](#footnote-ref-45)
46. Giedion to Can Eesteren, 5.10.1929; Giedion to Bourgeois 31.10.1929; and Giedion to Le Corbusier, 21.8.1929, : CIAM/K/Giedion 1929. [↑](#footnote-ref-46)
47. Giedion to Meyer, 22.11.1929: CIAM/K/Giedion 1929. [↑](#footnote-ref-47)
48. Giedion to Neutra, 30.10.1929: CIAM/K/Giedion 1929; “Dritte internationaler Kongreß für Neues Bauen,” *Stein Holz Eisen* 4 (1930): 4: CIAM 3-1-14, 22-4. [↑](#footnote-ref-48)
49. Grulois, “La Construction Épistémologique,” 5-16. [↑](#footnote-ref-49)
50. Minutes from the meeting of the committee of organisation of the 3. Congress, Paris 3.2.1930: CIAM, 3-1-11, 22-4. [↑](#footnote-ref-50)
51. Ibid., 41-2. [↑](#footnote-ref-51)
52. Gropius to Giedion, 10.5.1930: CIAM/K/Giedion. [↑](#footnote-ref-52)
53. Giedion to L H Keay, 29.1.1930: CIAM/K/Giedion 1930; Minutes from the meeting of the committee of organisation of the 3. Congress, Paris 3.2.1930: CIAM, 3-1-11, 34-5; Somer, *The Functional City,* 39-40. [↑](#footnote-ref-53)
54. Protocol of the Meeting of 17/20 May, Paris: CIAM 3-1-21, 5 [↑](#footnote-ref-54)
55. Minutes from the meeting of the committee of organisation of the 3. Congress, Paris 3.2.1930: CIAM, 3-1-11, 4-10. [↑](#footnote-ref-55)
56. Passanti, “The Skyscrapers of the Ville Contemporaine,” 53-65. [↑](#footnote-ref-56)
57. Protocol of the Meeting of 17-20 May, Paris: CIAM 3-1-21, 2-5 [↑](#footnote-ref-57)
58. Summary of the meeting of the Committee for the preparation of the Congress of Brussels, 17/20.5.1930: CIAM, 3-1-24 [↑](#footnote-ref-58)
59. Meeting of third congress delegates, Frankfurt 9.1930: CIAM 3-1-3, 1-4 [↑](#footnote-ref-59)
60. “Rapports des groupements des different pays presentés”, 29.11.1930, Zusammenfassung der Landesberichte: CIAM 3-4-4 [↑](#footnote-ref-60)
61. Protocol of the meeting of 20.5.1930: CIAM, 3-1-22, 4-5; Diaz, and Southall, “Le Corbusier’s Cité de Refuge: Historical & Technological Performance of the Air Exacte” [↑](#footnote-ref-61)
62. “Les journées de l’habitation minimum”. [↑](#footnote-ref-62)
63. “Le plan de l’habitation minimum”. [↑](#footnote-ref-63)
64. Introductory talk by Moser, 27.11.1930: CIAM 3-4-21D; cf. a similar argument in *Rationelle Bebauungsweisen,* 5-6. [↑](#footnote-ref-64)
65. Giedion to Moser, 29.1.1930; and Giedion to May, 29.1.1930: CIAM/K/Giedion 1930. [↑](#footnote-ref-65)
66. Giedion to Gropius, 27.1.1930: CIAM/K/Giedion 1930. [↑](#footnote-ref-66)
67. Meeting of third congress delegates, Frankfurt 9.1930: CIAM 3-1-3, 1. [↑](#footnote-ref-67)
68. Giedion to Bourgeois, 6.8.1930: CIAM/K/Giedion 1930. [↑](#footnote-ref-68)
69. Oorthuys, and Möller, *Mart Stam 1899-1986,* 14; Bosma “New socialist cities”; Flierl, “‘Possibly the Greatest Task’. [↑](#footnote-ref-69)
70. Meeting of third congress delegates, Frankfurt 9.1930: CIAM 3-1-3, 5. [↑](#footnote-ref-70)
71. Cohen, *Le Corbusier et la Mystique de l’URSS*; Moos, *Le Corbusier: Elements of a Synthesis*, 171-2. [↑](#footnote-ref-71)
72. Giedion to Colly, 2.9.1929 / Giedion to Ginsburg, 13.9.1929 / Giedion to Lissitzky, 23.8.1929: CIAM/K/Giedion 1929; correspondence between Giedion and the Central Council for Cooperative Housing and Building Societies in Moscow: CIAM, Zentralrat der Baugenossenschaften der SU: CIAM/K/Giedion 1930. [↑](#footnote-ref-72)
73. McLeod, “‘Architecture or Revolution’: Taylorism, Technocracy, and Social Change,” 132-47. [↑](#footnote-ref-73)
74. Teige, *The Minimum Dwelling*, 185. [↑](#footnote-ref-74)
75. Brott, “The Le Corbusier Scandal, or, Was Le Corbusier a Fascist,” 196-227; Antliff, *Avant-Garde Fascism,* 111-53; Antliff, “The Artist as Producteur,” 13-46; Brott, “The Ghost in the City Industrial Complex,” 131-42. [↑](#footnote-ref-75)
76. Leach, *Architecture and Revolution*, 113-23. [↑](#footnote-ref-76)
77. Minutes from the meeting of the committee of organisation of the 3. Congress, Paris 3.2.1930: CIAM, 3-1-11, 27 [↑](#footnote-ref-77)
78. “Les journées de l’habitation minimum”. [↑](#footnote-ref-78)
79. Somer, *The Functional City*, 37, 77-9. [↑](#footnote-ref-79)
80. Summary of talk by Le Corbusier: CIAM 3-4-1. [↑](#footnote-ref-80)
81. Böhm, Kaufmann, “Untersuchung der Gesamtbaukosten zwei- bis zwölf-geschossiger Bauweisen”: CIAM 3-4-11D, 7. [↑](#footnote-ref-81)
82. May, “Fünf Jahre Wohnungsbautätigkeit”. [↑](#footnote-ref-82)
83. Gropius, “Flach-, Mittel- und Hochbau”: CIAM 3-4-12D. [↑](#footnote-ref-83)
84. Teige, “Die Wohnungsfrage der Schichten des Existenzminimums.” In *Rationelle Bebauungsweisen*, 64-70; Collins, and Swenarton, “CIAM, Teige and the Housing Problem,” 158. [↑](#footnote-ref-84)
85. “Berichte der Landesgruppen.” In *Rationelle Bebauungsweisen,* 71-3. [↑](#footnote-ref-85)
86. “Opinion du congrès au sujet de la question des maison basses, moyennes ou hautes”: CIAM 3-4-4. [↑](#footnote-ref-86)
87. See, for example, *International Housing and Town Planning Congress*, *Paris 1928*, 32-76; Geertse, “Defining the Universal City,” 187. [↑](#footnote-ref-87)
88. Van Eesteren, C., “Rationelle Bebauungsweisen”. In *Ausstellung Walter Gropius – Rationelle Bebauungsweisen, Kunstgewerbemuseum der Stadt Zürich (Wanderausstellung der III. Internationalen Kongresses des Neuen Bauen, 14.2-15.3.1931*: CIAM 3-7-21D, 19-24. [↑](#footnote-ref-88)
89. Moravánzsky, “Blow-Up: The Powers of Scale,” 29. [↑](#footnote-ref-89)
90. Johnson, *Theory of Architecture*, 363-4. [↑](#footnote-ref-90)
91. On the notion of ‘bigness’ in relation to scale and context, see Koolhaas, “Bigness”, in *S, M L, XL*, 509-16. [↑](#footnote-ref-91)
92. *Rationelle Bebauungsweisen*, 14; cf. Schmidt’s similar points at the September 1930 meeting: meeting of third congress delegates, Frankfurt 9.1930: CIAM 3-1-3, 19. [↑](#footnote-ref-92)
93. Giedion to Aalto, 13.1.31 : CIAM/K/Giedion 1931CG. [↑](#footnote-ref-93)
94. Summary of talk by Le Corbusier, “Parcellement du sol des villes”, 27.11.1930: CIAM 3-4-1/3. [↑](#footnote-ref-94)