Planning Belgian Congo's network of medical infrastructure: Type-plans as tools to construct a medical model colony, 1949-1959.

Simon De Nys-Ketels,[a]* Laurence Heindryckx,[a] Johan Lagae[a] and Luce Beeckmans[a]

[a]*Department of Architecture and Urban Planning, Ghent University, Ghent, Belgium;*

Correspondence details Simon De Nys-Ketels: Jozef Plateaustraat 22, Gent, Belgium, simon.denysketels@ugent.be.

Simon De Nys-Ketels is a PhD-candidate at the Department of Architecture and Urban Planning of Ghent University. He graduated in 2012 with a master dissertation on the origin and development of the Kenya-neighbourhood in Lubumbashi, DR Congo, based on extensive archival research as well as extensive fieldork. Apart from his experience in the Democratic Republic of Congo, he has also participated in a heritage listing project in Nawalgarh and in research on slum rehabilitation projects in Nagpur, in 2013 in India. Before starting his PhD, he worked one year as a research fellow at the University of Antwerp. His current PhD-research concerns the architecture and urban planning of colonial and post-colonial hospital infrastructure in the DRC.

Laurence Heindryckx is a PhD candidate at the Department of Architecture & Urban Planning of Ghent University, researching real estate development during the twentieth century metropolization of Belgium. Her Master's dissertation, Forging Congo's Road Network: Scenes of dissonance within the colonial project, gained the price of best Master's dissertation in Architectural Sciences of 2016 at Ghent University, and explores the evolution of the road network in the Belgian Congo during the interbellum. She participated as a scientific collaborator on the mapping of health care infrastructure built in the Belgian Congo in the context of the Ten-Year Plan (1949-1959).

Johan Lagae is Full Professor at Ghent University teaching 20th Architectural History with a particular focus on the non-European context. He received an MSc Degree in Engineering: Architecture from Ghent University in 1991 and obtained a PhD degree with a dissertation on 20th century colonial architecture in the former Belgian Congo from the same institute in 2002. His current research interest are colonial & postcolonial architecture in (Central-)Africa, African urban history, colonial photography and colonial built heritage. He is supervising several long term research projects funded by FWO (Flemish Fund for Scientific Research) and

has been participating in several international research communities. Between 2010 and 2014 he acted as co-chair of a European Community funded COST-action entitled 'European Architecture beyond Europe' (www.architecturebeyond.eu) and currently sits on the board of the open access online journal that resulted from this research collaboration: ABE journal (https://journals.openedition.org/abe/).

Luce Beeckmans is a post-doctoral research fellow funded by the Flanders Research Foundation (FWO) and affiliated to Ghent University (Department of Architecture and Urban Planning, head institution), KULeuven University (Interculturalism, Migration and Minorities Research Centre) and Antwerp University (Urban Studies Centre) in Belgium. In 2005, she graduated as an engineer-architect at Ghent University and then worked at the international office of Stéphane Beel Architects. In 2013, she obtained a PhD-degree from the University of Groningen (Groningen Research Institute for the Study of Culture, ICOG) with an award-winning dissertation in which she studied colonial and post-colonial urban development in sub-Saharan Africa from a comparative and interdisciplinary perspective. Luce Beeckmans has a keen interest in the circulation of spatial knowledge between Europe and Africa, both within the framework of colonisation and development cooperation and as a result of trans-national migration. Her most important research topics are urban segregation and encounter; urban agency and citizenship; spatial appropriation and place-making; housing and diversity; and global religious spatiality. She has published widely and co-curated exhibitions on these topics.

Planning Belgian Congo's network of medical infrastructure: Type-plans as tools to construct a medical model colony, 1949-1959.

Throughout the 1950s, the Belgian colonial government constructed a vast network of hospital infrastructure as part of its Ten-Year Plan, a colony-wide socio-economic scheme emblematic for the era of 'welfare colonialism.' This network played a key role in Belgian colonialism, by providing healthcare, but also by boosting labour productivity, facilitating state presence and control, and by advertising Congo as a medical model-colony. In this article, we unpack the extensive administrative apparatus that was necessary to buttress this ambitious building programme, and we highlight type-plans as crucial government tools to construct such a vast network of healthcare infrastructure. At first glance, the use of type-plans confirms classic characterizations of the Belgian colonial government as an omnipotent and technocratic state apparatus that implemented large, top-down government plans through authoritative methods, often discarding local realities. However, tracing hospital construction on the ground reveals that type-plans did not function as immutable models, but rather as modular blueprints that allowed local administrations to adapt hospitals to local needs and contingencies. As such, our article illustrates how, facilitated by surprisingly flexible type-plans, everyday colonial policymaking in Belgian Congo was, contrary to the still dominant discourse, deeply reliant on the agency and aptitude of local officials.

Keywords: Belgian Congo; hospital architecture; colonial architecture; type-plan;

Introduction

Acclaimed as a 'tropical cornucopia' by Time Magazine in 1955, Belgian Congo had curbed international critiques on the 'red rubber' atrocities under King Léopold II and gained name and fame as one of Africa's model colony. The magazine lauded Belgium's paternalistic approach of slow yet steady progress, stating that 'Today, all has changed. Nowhere in Africa is the Bantu so well fed and housed, so productive and

so content as he is in the Belgian Congo.'[1] Of course, the Belgian colonial authorities' public discourse of a *colonie-modèle* fuelled this high esteem held by foreign reporters. Numerous state initiatives and publications aimed to shed the stigma inherited from the earlier Congo Free State period, upholding the idea that Belgium was 'above anything, concerned with the well-being of its indigenous populations, and that its "paternalistic" methods only encountered success.'[2] A cornerstone of this image was its elaborated public healthcare system. Looking back at the interbellum period in 1946, Governor General Ryckmans boasted his colony's excellent medical services which 'provided care to millions of natives', thanks to an 'immense effort of organization, dedication and financial commitment, a result of which we can be justifiably proud.'[3]

After the second world war, public healthcare became an even more crucial aspect of Belgian Congo's image of a *colonie modèle*. In the face of a changing international climate which, fronted by the newly-founded United Nations, increasingly criticized colonial rule, the Belgian colonial government explicitly reframed its colonial project as a *mission civilatrice*. Launched in 1949, the government's *Ten-Year Plan for the Economic and Social Development of the Belgian Congo*[4] reflected the general, continent-wide shift in colonial policymaking towards what Young has labelled 'welfare colonialism.'[5] On the one hand, the Ten-Year Plan continued to serve the colonial extraction economy, by heavily investing in the development of transport

---

[1] "Congo: Boom in the Jungle," *Time Magazine*, May 16, 1955, 2.

[2] Lauro, "Maintenir l'ordre, " 103. On Belgian Congo's propaganda, see Stanard, *Selling*.

[3] Ryckmans, *Etapes*, 56.

[4] Ministry of Colonies, *Plan Décennal.* As did other colonial powers such as France, through FIDES and the UK, through its Welfare Act. For contemporaneous propaganda of the Ten-Year Plan, see for instance Ministry of Colonies, *Investir c'est prospérer*.

[5] Young, *The African Colonial State*, 4.

infrastructure, communication services and mining industries. On the other, the plan aimed to establish a colonial rendition of the metropole's welfare state through social amenities, housing, education and, most importantly, public healthcare.[6] Still, although the health of both the European and African population was a major concern in itself, this network of medical infrastructure also had clear economic aims. It needed to increase labour productivity, since 'to produce, one needs hands.'[7] Realizing a network of medical infrastructure thus fulfilled a number of key roles at the core of the Belgian colonial project. The network provided care to a growing number of Congolese, sought to boost the output of African labour and played a decisive part in legitimizing Belgium's colonial rule by propagating the image of a model colony.

The network of medical infrastructure realized in the post-war period was surely impressive. At the end of the colonial era, the colonial state had realized nearly all of the 93 rural hospitals planned under the Ten-Year Plan, and had subsidized many more private and missionary medical infrastructures. With 13.5 million Congolese, these hospitals provided an average of 6.2 beds per thousand inhabitants.[8] Comparable to

---

[6] Ministry of Colonies, *Plan Décennal*. The budget outlined for hygiene and medical infrastructure was the 4th largest item of the Ten-Year Plan, surpassing investments in education and housing, but also in e.g. water and electricity services. Nonetheless, the largest investments were still made in road and railway infrastructure, reflecting the continued emphasis on economic development.

[7] Belgian State Archives, African Archives (AA)/ Brussels Medical Department Files (H) 4570, Report of the Ten Year Plan's medical commission, April 1948. This was noted under the 'Justificatory clarification' of the Ten Year Plan's healthcare programme, which, as the commission continued, would tackle the fact that 'the colony not only lacks hands, the ones available have, most often, a mediocre output.'

[8] Burke, "Développement des services de santé," 128.

those of Western countries such as the U.S., this figure surpassed most other African colonies and even the Belgian metropole.[9]

Of course, to buttress and efficiently manage the construction of such an extensive network across a territory as vast as Western Europe, the colonial government had to develop an extensive administrative apparatus. In this article, we aim to unpack this government machinery by highlighting type-plans as one of the most crucial 'techniques of government'[10] to realize such a vast construction campaign. Used for over 80 rural hospitals, these type-plans did not serve construct monumental or iconic landmarks, but rather generic and anonymous buildings. By zooming in on these constructions, we heed recent calls of various authors to go beyond the 'visible politics' of colonial 'monumental public buildings,'[11] and instead pay attention to the 'amazingly widespread, if somewhat banal and mundane, array of structures that facilitated global empire.'[12] Belgian Congo's rural hospitals are prime examples of such a 'grey architecture,'[13] which was perhaps less visibly present, but all the more important to everyday colonial statecraft. As such, type-plans for these hospitals allow us to unpack how exactly the colonial administrative apparatus sought to realize this all too often

---

[9] In 1955, the U.S. counted 5.1 beds per 1000 inhabitants. Belgium counted 4.1 beds per 1000 inhabitants in 1956. A year later , Belgian Congo counted 5.1 beds per 1000 inhabitants. See respectively U.S. Department of Health, Education, and Welfare, *Annual Report 1955*; Belgian Ministry of Economics, *Annual Statistical Report*; AA/H 4474, letter from Head of Medical Department Dr. Kivits to Minister of Colonies A. Buisseret, 19 June 1957. For a comparison of healthcare in African colonies, see Azevedo, *Historical Perspectives*.

[10] Foucault, "Governmentality," 244-245.

[11] Chang, *A Genealogy,* 10.

[12] Bremner, Lagae, and Volait, "Intersecting Interests," 236.

[13] Ibid., 236.

'neglected ordinary colonial built environment.'[14] Similar arguments have been made by Peter Scriver and Jiat-Hwee Chang in the context of British India and Singapore. They revealed how the central British Public Works Department deployed type-plans as crucial 'technologies of distance'[15] that were key in colonial statecraft or the 'scaffolding of empire.'[16] Their main focus, however, lies on the central branches of the British Public Works Department, either in London or the colonial capitals. Hence, the question remains if and how top-down 'technologies of distance' such as these centrally devised type-plans, landed in and were adapted to the often messy colonial reality.

Here, we pick up these threads. We examine the development and design of type-plans for rural hospitals at the central government, but also scrutinize how local colonial policymakers realized these hospitals in practice. This allows us to confront some of the government rationalities that underpinned the colonial apparatus with the practical reality of policymaking in the face of local contingencies. Colonial governments are regularly portrayed as omnipotent state apparatuses, in which technocrats such as engineers, architects, and urbanists devised large-scale, top-down government plans that were often implemented through authoritative, even coercive methods. This is especially true for the Belgian colony, which formed the inspiration of Young's telling imagery of a hegemonic, 'stone-crushing' *Bula Matari*.[17] James Scott, too, noted that 'an ideology of "welfare colonialism" combined with the authoritarian

---

[14] Chang, *A Genealogy,* 11.

[15] In this notion, Chang builds on Latour's notion of immutable mobiles. Chang, *A Genealogy*, 10.

[16] Scriver, "Empire-Building," 69.

[17] Young, *The African Colonial State*.

power inherent in colonial rule have encouraged ambitious schemes,'[18] of which the Ten-Year Plan's healthcare programme forms a prime example. At first glance, the use of type-plans seems a perfect illustration of Scott's 'seeing like a state,'[19] confirming that colonial policymaking was indeed a top-down process, monitored and controlled by an authoritarian, centralized state apparatus. As these type-plans were drawn without regards for the future spatial context of the hospital, the central technocrats behind these plans – engineers, architects and doctors – seemingly regarded the local features of rural Congo as irrelevant, reducing the distant Congolese hinterland to a climatically and socio-culturally isotropic emptiness. In this *Terra Nullius*, they relied on the superiority of western cartography and self-drawn borders to divide the territory and make it legible. Based on these administrative subdivisions, they could meticulously plan out the location and scope of each node of the Ten-Year Plan's hospital network.

We argue that this portrayal is all too simplistic. Instead of an exclusively top-down process, colonial policymaking was deeply reliant on the agency and aptitude of local officials. Their 'metis' – James Scott's term for localized, practical know-how – proved crucial to both plan and realize the Ten-Year Plan's healthcare scheme.[20] We will illustrate this through narratives from two scales of Belgian Congo's healthcare programme. On the one hand, we discuss the planning and realization of the colonial *réseau hospitalier* at large. This first scale allows us to chart the surprising extent to which local officials weighed in on centralized policy decisions. As we will show, already during the preparation of the Ten Year Plan's healthcare campaign, local agents

---

[18] Scott, *Seeing*, 97.

[19] Ibid.

[20] Ibid., 6.

collected and processed invaluable information for the central authorities. Data on local demographics, disease incidence, and accessibility directly shaped the ultimate choice of location of numerous rural hospitals.[21] Moreover, instead of binding models, type-plans were designed as surprisingly flexible tools. They allowed provincial architects and local contractors to tailor the hospital's design to local challenges such as topography, climate, or particular healthcare issues. At the second scale, we will zoom in on the planning process of Kiri and Aru, two particular cases of hospitals situated at liminal fringes of the colonial territory. These cases show that when implementing the healthcare scheme on the ground, other government agendas for constructing hospital emerged. Increasing local state presence and sanitary border control proved crucial, but these motives often clashed with the government rationalities that were part of the strategy of using type-plans.

The article is structured according to our main argument. In the first section, we trace how rural type-plans were developed as a means of medical mass-production. We will discuss how such administrative *modus operandi* was seemingly predicated on a centralized and efficient government apparatus and the preconception of Africa as an isotropic space. In the second section, we then complicate this view by discussing the actual realization of the hospital network, first by addressing the general planning and implementation of a colony-wide construction campaign, then by zooming in on the two particular cases of hospitals.

---

[21] This seems evident, but hadn't been the case during the interbellum, when the location of hospital location was often decided by Brussels-based technocrats. See Lagae, "Cracks," 6-8.

Type-plans as generic models for the Congolese hinterland

The colonial authorities officially launched the Ten-Year Plan in 1949, but its public healthcare programme was rooted in a much earlier infrastructural scheme. Already in 1921, minister of colonies Louis Franck had implemented a vast public works programme. This *Plan Franck* not only entailed the extension of road-, rail-, and waterway infrastructure, but also the construction of a first network of medical care. In order to efficiently realize such *réseau hospitalier*, the public works department and the medical service – the two most involved departments – were expanded and became increasingly influential administrative branches within the colonial government. Three decades later, the medical programme of the *Plan Décennal* echoed, surpassed and expanded the existing network and the bureaucratic reforms realized under the earlier *Plan Franck*.

Similar to the interbellum, the medical scheme of the Ten-Year Plan implied a huge administrative undertaking that would demand even closer collaboration between multiple and geographically dispersed branches of the colonial government.[22] The head of the Léopoldville Medical Service, Dr Van Hoof, took the first step in the development of the Ten-Year Plan's healthcare scheme. In 1945, he presented a first proposal to his senior officer, Governor General Ryckmans, who in turn communicated the proposal to the Brussels Minister of Colonies. After both senior officers had

---

[22] Vanthemsche, *Genèse.* While the Ministry of Colonies, subdivided in several departments such as the Medical and Public Works service, held office in Brussels, a parallel, similarly organized administration operated in Léopoldville. This sister administration was called the *Gouvernment Général*. Lead by the General Governor, it also comprised several parallel departments, including a Léopoldville medical and public works service, which in turn supervised sub-departments in each of the six provincial capitals, named *Gouvernements Provinciaux.* See also Vanhove, *Histoire.*

officially approved the plan, Dr Van Hoof was charged to collaborate with the head of the Brussels Medical Service, Dr Duren, who would prove the most influential protagonist of Belgian Congo's healthcare policymaking of the post-war period. Together, they determined the outlines of the *Plan Van Hoof-Duren,* which turned out the precursor of the future Ten Year Plan's medical programme.

In 1946, Dr Duren gathered a *Commission des Médecins,* comprised of the most prominent colonial doctors in Brussels, to further develop the initial principles of the *Plan Van Hoof-Duren* into a colony-wide healthcare campaign for the Ten-Year Plan. The outlines set forth by this Commission were straightforward but ambitious. Where the Plan Franck had constructed large hospitals in Congo's four provincial capitals, and foreseen rural hospitals in its 22 district seats, the Commission now envisaged a complete medical coverage of the Congolese territory through a far-reaching densification of the existing healthcare network. By 1947, the Belgian colony had been reorganized into 6 provinces, with 17 districts, in turn subdivided into a total of 117 *territoires*.[23] The future network of medical infrastructure was to be based on this administrative subdivision. Large and architecturally ambitious landmark hospitals, equipped with the latest medical technology and following relatively up-to-date hospital planning principles,[24] were planned in the provincial capitals and the larger urban centres, while in the smaller district seats, middle-sized regional hospitals were to be constructed. In each rural territory, a handful of small dispensaries was to provide

---

[23] Ministry of Colonies*, Rapport Annuel*, from years 1947 to 1958. Throughout the implementation of the Ten-Year Plan, this administrative subdivision would be altered several times, ranging between 117 and 125 *territoires*.

[24] Which often turned out failed prestige projects. De Nys-Ketels et al., "Spatial Governmentality."

primary care across the numerous scattered villages, referring the most ill and urgent cases to a central rural hospital situated in the territory seat.

INSERT FIGURE 1 HERE

In order to streamline the implementation of such a massive infrastructural scheme and ensure its financial feasibility, the Commission stressed that these rural hospitals be 'urgently constructed' by making efficient use of a 'standardized plan.'[25] A year after the Commission had gathered, Dr Duren published a report in which he further elaborated the Commission's decisions, explaining in even more detail how to 'reinforce the medical action in rural zones.'[26] In this report, he presented a first sketch for a type-plan for rural hospitals (*fig. 1*, *above*) as well as a tentative diagram (*fig. 1, below*) depicting the 'theoretical organization' of the hierarchic hospital network within a rural territory. Interestingly, these sketches were not by the hand of an architect or engineer, but by Dr Duren himself. This echoes earlier findings by Robert Home who has argued that the 'colonial landscape offered almost untrammelled scope' for colonial doctors, who became 'all-purpose experts' and the 'new specialists of space.'[27] Only in the latest phase of the design process, the Léopoldville Public Works Department became involved. Remaining largely faithful to the sketch's original outlines, A. Flahou, one of the many Public Works architects, technically elaborated and fine-tuned the doctor's sketch. The result (see *fig. 2*) was a set of official type-plans for a *'Centre Médico-Chirurgical Type d'une formation médical territoriale avec section*

---

[25] AA/H 4387, Ministry of Colonies, Reorganisation and Extension of the Medical Services: Report of the Commission of Doctors. 1946.

[26] AA/Brussels Public Works Department files (3DG) 984, *Evolution of our methods of medical assistance in the rural zones of the colony,* report by Dr. Duren to the *Congrès Colonial Belge, Section d'Hygiène et Démographi*e, Septembre 1947.

[27] Home, *Of Planting and Planning*, 42.

d'hospitalisation pour Européens (C.M.C.).'[28] The hospital consisted of several single-storey pavilions, connected by open yet covered corridors, and symmetrically organized around a central courtyard. Each pavilion, oriented with its long axis from east to west,[29] housed a particular medical service, varying from surgery, maternity care and infectious diseases, to general services such as administration and logistics. These central pavilions separated the housing for African staff and other wards for arriving and departing African patients from the European hospital section, which included an isolated pavilion for European patients and residences for European personnel.

Designed without regards for or reference to the future spatial context or surroundings of the hospital, the plans and sketches seem to mirror the way Belgian central policymakers conceptualized the colonial hinterland. The C.M.C.'s were drawn in an empty, blank environment. Although these hospitals would be constructed at numerous, different locations, their varying surroundings were deemed irrelevant and reduced to a virtually homogeneous emptiness. Rural Congo was assumed a climatically and socio-culturally isotropic territory. On this blank, empty canvas, technocrats from the remote capital could easily imprint and reuse the same type-plans as efficient 'technologies of distance.' The same template of rural hospitals and satellite dispensaries could be invariably reiterated over and over again, across a colony as vast as Western Europe. Although type-plans for hospitals have been developed in various other countries and colonies as generic models, regardless of context, the scale to which

---

[28] AA/ Léopoldville General Government Files (GG) 18186.

[29] This was considered the optimal orientation for buildings in the tropics: with the sun following a zenithal trajectory, the northern and southern sides of buildings catch little direct sunlight. However, the sun is at its lowest in the east and the west. As such, the direct sunlight entering buildings through the eastern and western façades is limited by this orientation.

these have been used in Belgian Congo is unique. Moreover, such flattening of the African interior has a longer history. It proved crucial during the Berlin Conference in 1885. Under the impetus of, among others, King Léopold II, the legal concept of a *Terra Nullius* was elaborated to legitimize Europe's Scramble for Africa. While it was widely known that Africa was absolutely not an uninhabited *Terra Nullius*, the argument went that 'savage or semi-barbarian peoples' had no sovereignty,[30] allowing European powers to consider Africa as empty and claim its territories. Although *Terra Nullius* only played a 'minor part in the colonial powers' acquisition of African territory, 'its significance was ideological.'[31] It not only legitimized European colonialism, but also echoed through in European landscape perceptions of central Africa. Geographers have argued how Africa was pictured as a pristine, void Eden, generating 'a tabula rasa, an emptiness'[32] and portraying Africa's landscape as 'ripe for settlement and colonisation.'[33]

At the Berlin Conference, colonisation meant drawing out borders without much knowledge of Africa's geography, and with little to no regard for existing socio-political structures. Legitimized by the concept of a *Terra Nullius*, Africa's cake was divided with a few quick strokes on a map, without Africans having any say in it. Quickly, however, criticism arose on the brutality of such arbitrary boundaries. During the Interbellum, critics condemned 'the borders of Africa' as 'the scars of the old methods of colonization,' and as 'evidence of a coercive and arbitrary logic' of earlier

---

[30] Fitzmaurice, *Sovereignty*, 286.

[31] Fisch, *Africa*, 358.

[32] Wiley, *Landscape,* 127.

[33] Ibid., 133.

imperialism.[34] While some authors still condemn African borders as 'unusually arbitrary as a result of their largely colonial origins,'[35] others have nuanced this view, showing that the real cutting of the African cake 'didn't happen at Berlin.'[36] Instead, according to authors such as Gillian Mathys, the making of borders was done locally, 'involved interaction between colonial administrations and Africans' and reveals 'the messiness and complexities of colonial rule' on the ground.[37] Still, external as well as internal administrative boundaries were essential to the exercise of power. By subdividing the territory into smaller 'meshes of power,'[38] the colonial government sought to 'make a society legible' and 'arrange the population in ways that simplified the classical state functions of taxation, conscription and prevention of rebellion.'[39]

Legible borders also facilitated a diffusionist use of type-plans, which were shipped from the central administration in Léopoldville to its various provincial branches. These were then to undertake and supervise construction of the numerous hospitals, and, ensuring that the healthcare programme progressed according to schedule, report back to the central administration. Thus, an extensive administrative machinery allowed the central medical and public works departments to send out building instructions and monitor the construction of a colony-wide network of standardized hospitals. Closely mirroring the hierarchic chain of command of the colonial state, this diffusionist *modus operandi* of type-plans seems to suggest that

---

[34] Lefebvre, "We have tailored," 199.

[35] Englebert, Tarango, and Carter, "Dismemberment," 1093.

[36] Katzenellebogen, "It didn't happen at Berlin," 21.

[37] Mathys, "People on the Move," 2-3.

[38] Foucault, "The Meshes."

[39] Scott, *Seeing*, 2.

Belgian colonial policymaking under the Ten-Year Plan was indeed a highly centralized affair, monitored by an all-controlling hegemonic state machinery.

INSERT FIGURE 2 HERE.

Realizing a *Réseau Hospitalier*: type-plans as a modular means of medical mass-production

INSERT FIGURE 3 HERE.

Colonial reality, however, proved far more complex. In an extensive mapping of Belgian Congo's post-war healthcare infrastructure, we've pinpointed the various *C.M.C.'*s realized as part of the Ten-Year Plan and traced the respective footprints of these rural hospitals (*fig. 3*).[40] No single historical source provides a complete listing of the hospitals constructed under the Ten-Year Plan, nor a clear-cut overview of the spatial lay-out and architecture of this infrastructure. However, by combining and triangulating state propaganda, annual government reports, budgetary records and current aerial photographs, we have been able to geo-locate and map the spatial lay-out of 88 of the 93 rural hospitals foreseen under the Ten-Year Plan.

---

[40] The map is drawn by the authors based on a research seminar organised by the authors of this paper during the academic year 2016-2017 with master students at the Department of Architecture and Urbanism, Ghent University, in order to produce a detailed mapping of the health care infrastructure built in the several provinces of the Belgian Congo in the context of the Ten-Year Plan (1949-1959). During this mapping exercise, covering the six provinces of Belgian Congo, a total of 88 out of the 93 planned rural hospitals constructed according to these type-plans could be identified. Other sources that were consulted: Duren, "Cartes des Établissements Médicaux Importants; " Ministry of Colonies*, Rapport Annuel*, from years 1947 to 1958; public tenders of C.M.C.'s across the AA/GG.

Throughout the analysis of these various sources, it became clear that local agents were crucial cogwheels within the decision-making process. This was not only the case during the local realization of these hospitals, but even during the colony-wide preparation of the Ten-Year Plan's healthcare scheme. While the hospital network was simply to follow the administrative subdivision of the Congolese territory – with healthcare nodes at every district or territory seat, deciding in which outposts *C.M.C.*'s would be constructed nonetheless proved much more of a challenge than anticipated. Neither the Brussels, nor the Léopoldville Medical or Public Works Services possessed a comprehensive overview of the existing medical infrastructure at the time. As a result, neither departments were able to determine the right locations for future rural hospitals. As such, Dr Duren and his Léopoldville counterpart sent out surveys to the various provincial governments. Based on the local expertise of various sanitary agents operating and travelling across the Congolese rural hinterland, these provincial branches provided the central administration with the needed information on the hospitals built in each province. Each of the six heads of the provincial medical services combined, summarized and processed the data of their sanitary agents into a provincial report, which were then reviewed and compiled in Léopoldville and reassessed in Brussels. In 1948, after two years of collecting and analysing data, this finally resulted in an overview of the state, philanthropic and private hospital infrastructure existing in Congo at the time.[41] Parallel to this survey, other, similar mappings were undertaken. Local agents collected, processed and sent out data on demographics, road and railway

[41] AA/H 4470, *Dénombrement et Classification des établissements du Service Médical,* 1948.

infrastructure, but also on nosology and incidence of tsetse flies.[42] Eventually, the Léopoldville and Brussels Medical Services identified a final 93 localities for the construction of future rural hospitals. While the administrative subdivision ultimately proved the most important factor for the distribution of the hospital network, this data also influenced the location of several rural hospitals.

As a perfect example of what Paul Rabinow and Nikolas Rose have called 'strategic bricolage,'[43] the preparation of the Ten-Year Plan's healthcare scheme thus required the cooperation of various echelons of the colonial government and the assemblage of different forms of knowledge. Still, the maps that were compiled and that ultimately formed the basis of the Ten-Year Plans medical network remained incomplete. On the one hand, the atlas abruptly halted at the colony's frontiers. In reality, the tropical diseases, insects, cattle, and people that constantly crossed the permeable colonial border, gave rise to important local healthcare challenges and concerns of sanitary border surveillance. On the other, these maps overlooked important local realities such as topography, climate, parcel dimensions, vegetation, or the presence of local roads or African trackways.

However, Figure 3 illustrates that while the same template for *C.M.C.*'s was widely used across the colony, the numerous rural hospitals nonetheless showed an intriguing variety in footprints. As such, our mapping suggests that instead of strict models, type-plans actually provided local administrators with a surprisingly flexible tool to tackle local realities. Although many central policymakers must have

---

[42] Later combined in the General Atlas of Congo, in which information on hospital infrastructure was explicitly incorporated. Cahen *et al.*, *Atlas*.

[43] Rabinow and Rose, "Introduction," xvi.

preconceived Congo as a flattened territory, where type-plans could invariably be reused without adaptations necessary, Dr Duren surely was aware of the many local challenges that construction in rural Congo often entailed. As a seasoned officer, he had over ten years of experience in various outposts of the colony and had travelled across and beyond Congo, visiting and assessing the construction of numerous hospitals. While he still was, without a doubt, a firm believer of a diffusionist *modus operandi* and of the adequacy of type-plans as powerful reproducible templates in rural Congo, he nonetheless seems to have built in some flexibility in these plans. A binder combined the general *Plan d'Ensemble* with more detailed and technically elaborated type-plans for each pavilion. The *Plan d'Ensemble* not only outlined the general lay-out of the hospital, but also attributed a particular identification code to each depicted pavilion. In its top corner, an inventory listed these identification codes with reference to the detailed pavilion plans. As such, the *Plan d'Ensemble* served as a convenient catalogue for a binder of type-plans that almost functioned as a modular assembly guide, rather than as a strict immutable mobile. Hence, as we've shown in an earlier publication, local policy makers could browse through the binder and, for instance, prioritize the construction of wards that targeted pathologies that were particularly acute in their region.[44]

INSERT FIGURE 4 HERE.

Moreover, after receiving the binder of type-plans from the central administration in Léopoldville, local architects of each provincial Public Works Department had to copy these plans multiple times in order to dispatch these to the

---

[44] This was for instance the case in the Equateur province, where alarming infertility rates urged local administrators to prioritize the construction of maternity wards before the realization of other pavilions. De Nys-Ketels, et al., "Service des Travaux Publics."

various districts and *territoires*.[45] Comparing these duplicates (*Fig. 4*) shows that copying in itself was not a trivial task. To prepare a correct blueprint for the provincial database, architects and administrators had to cut and reshuffle parts of the plan, adapting its lay-out and identification code to the inventory system used in these local archives. Architects were working with, reinterpreting, and rethinking these type-plans. This resulted in small financial optimizations: in some plans in the provinces Kasaï and Orientale the sanitary facilities of several pavilions were joined together, or in Katanga, the Public Works branch decided to shorten the corridors connecting the various pavilions, lowering the overall costs. As such, the act of copying may have spurred on local architects to fine-tune type-plans and make piecemeal yet crucial changes to the design of colonial hospitals. The most important adjustments, however, were in response to the local climate. For example, in the cool Katanga province, where it could even freeze overnight, the local architect removed the original sunshades surrounding the verandas and greatly reduced the ventilation shafts, respectively allowing additional heat capture by the sun and minimizing heat losses. In contrast, in the hot and humid Equator and Orientale provinces, the main roof was raised and split up, extending and lowering the verandas as sun-blocking elements. Additionally, the original ventilation shafts were enlarged, which, combined with the raised roof, were to create circulatory airflows to cool down the interior wards.

INSERT FIGURE 5 HERE.

After the adjustments of the provincial department, multiple copies of these optimized type-plans were then sent from the provincial capital to the various outposts

[45] As becomes clear from the multiple copies of these plans found across the archives. For the Equateur province alone, see AA/GG 941; 16646; 17330; 22601.

where rural hospitals were to be constructed. However, the general lay-out of the type-plans often did not fit the actual hospital site. The local government personnel, and the private supervisors who they had contracted, were left to improvise, but could easily use the flexible design of the type-plans. Browsing through the binder of type-plans, they could simply select and reshuffle the modular pavilions and adapt it to the local conditions. Figure 5 depicts a selection of three colonial outposts where this had been the case – although many more telling examples can be found. In these three territory seats, local agents corrected the orientation of the pavilions and corridors to the existing surrounding roads, expanded the hospital because of local demographics, realigned wards to the hilly terrain, shrank the internal courtyards due to shortages of space, or cleverly built around termite hills or baobabs (*Fig. 5*). As such, these various architectural adaptations indicate that one of the keys to the Belgian colony's impressive healthcare network was not the ability of type-plans as immutable 'technologies of distance' to 'circulate from one point to another within the network without distortion.'[46] Instead, it was the flexible modularity of these type-plans that allowed local administrations to tailor these plans to local needs and contingencies, in a colonial rural hinterland that proved to be a not so isotropic, blank canvas after all.

Similarly, the two cases we discuss below complicate these narratives even further. Again, they not only confirm how the trope of the Belgian colonial government as an omnipotent *Bula Matari* needs to be re-examined. Additionally, these cases illustrate how preconceptions of rural Congo as a homogeneous blank space clashed and contrasted with constructing hospitals on the ground. Locally, other motives for realizing a hospital network emerged. In Kiri, on the one hand, medical infrastructure

---

[46] Chang, *A Genealogy,* 248.

was used to establish state presence deep in Congo's hinterland. The hospital reinforced the administrative provincial boundaries and was used to monitor the mobility of the African population. However, Kiri was one of the most inaccessible outposts of the colony, and the colonial government was forced to deviate from its conventional *modus operandi* and rely on local administrators instead of the usual private contractors to construct the hospital. On the other hand, the Aru hospital, located at the Congo-Ugandan border, triggered discussions on sanitary border surveillance, an issue that had been completely overlooked in the original Ten-Year Plan.

Kiri: Penetrating the colonial territory

INSERT FIGURE 6 HERE

Throughout the 1950s, the colonial administration had, to a large extent, succeeded in its goals set out by the *Commission des Médecins*. A hierarchic network of urban medical complexes, rural hospitals, and small dispensaries had been realized, which closely followed the administrative subdivision of the colonial territory. At first glance, the Kiri case seems to highlight the territorial rigour of the Ten-Year Plan's medical programme. A rural hospital was planned and realized at the outpost, despite the fact that it was one of the most remote and inaccessible places of the Congolese hinterland. When the Ten-Year Plan was published, the village was still part of the Inongo territory. In 1952, however, the colonial administration decided to subdivide the rather large Inongo territory, making Kiri the seat of a newly created *territoire* bearing the same name. At that time, the colonial outpost already housed a medical centre that had functioned as a satellite dispensary for the existing rural hospital in the former Inongo capital. Consisting of a diagnostic unit and two wards of 20 beds each, it was already a fairly large primary care centre in comparison to other dispensaries in the rural

hinterland at that time. Nonetheless, as Kiri became an administrative seat on its own, the stringent Ten-Year Plan's logics now prescribed the expansion of the dispensary to a full-blown *C.M.C.*

However, erecting a hospital in a place as remote as Kiri was far from easy. Situated in the midst of an outstretched marshland, without road or railway infrastructure, the village was only accessible via the Lotoi river from the *Lac Léopold* (*see fig. 6*).[47] Most rural hospitals of the Ten-Year Plan were constructed through public tender, but since no private firm was present in the area or willing to engage in the costly and logistically challenging endeavour of building in a village as remote as Kiri,[48] the government authorities were forced to deviate from normal procedure and construct the hospital *en régie*. However, the transport of building materials had to be divided and adjudicated nonetheless, as the government lacked the necessary personnel, meaning large additional costs. The administration had to contract no less than eight private companies, each transporting a portion of the total load. The additional transport expenses from Léopoldville to Kiri summed up to over a tenth of the total cost of hospitals in other territories. When the equipment and construction parts finally arrived, the *Administrateur de Territoire* decided to recruit a Congolese sentinel guarding these

---

[47] The map is drawn by the authors based on the correspondence between the Médecin Provincial and the Administrateur Territorial, June 1956. (AA/GG 20721) / Other consulted maps: *Cartes des Établissements Médicaux Importants*, Dr. A. Duren, 1958. (Cahen et al., *Atlas*.) / *Carte au 1:3.000.000 Fond Détaillé,* Section Cartographie et Cadastre du Ministère des Colonies, 1953. (Cahen et al., *Atlas*.) / Atlas Carte Administrative, A. Massart, 1949. (Cahen et al., *Atlas*.)

[48] As this would imply not only the transport of construction materials and skilled labour, but also, and especially, the provision of food, shelter and healthcare to the temporary African workforce.

valuable materials, to prevent them from being stolen or damaged.[49] After a long five years of backbreaking transport of building materials and toilsome construction, the remote hospital eventually opened its doors in 1957.

Located at such an inaccessible outpost, the Kiri hospital reveals how other motives were also at play when realizing a colonial hospital network, which went beyond merely providing healthcare to Congo's rural population. With its tentacles reaching deep into rural Congo, the *réseau hospitalier* was to increase overall state presence in the colonial hinterland. It allowed the state to penetrate, monitor and control even the most remote, and least charted, corners of the colony. As the Kiri *territoire* was situated on the border of the Léopoldville province, a large part of the local Congolese population was enticed to find treatment in hospitals located in the neighbouring Equateur province. However, a *passeport de mutation* strictly regulated African movement between *territoires*.[50] In order to cross borders between territories and provinces, every Congolese had to acquire authorization by collecting the necessary stamps and inscriptions on their passports. In reality however, especially during the early 1920s and 1930s, the colonial government struggled to monitor every Congolese on the move, a situation which continued well until the 1950s. Studying patient lists of African patients treated in the *C.M.C.* in Kiri during the 1950s reveals how the colonial medical administration rigorously documented the origins and legitimacy of every arriving patient.[51] Furthermore, passengers of the ferry boats were all medically

---

[49] AA/GG 20721, letter from the *Médecin Provincial* to the *Administrateur Territorial* of Kiri, June 12, 1956.

[50] Mathys, Gillian, "People on the Move."

[51] AA/GG 15610, Léopoldville/Kiri/Inongo, Cercle Médical Kiri/Ingongo Patients' Registers, 1947-1957.

examined and registered before arrival or departure, presumably at the hospital, another means of the colonial state to control the mobility of its Congolese inhabitants.[52] The registers listed the name, ethnicity, employer, profession, origin and medical condition of each patient or passenger. By closely monitoring natality and morbidity figures of each ethnic group, these biostatistics functioned as vital techniques of government.[53] They allowed to devise ethnic- and region-specific healthcare solutions, thus facilitating the colonial state to maintain a healthy and productive 'labour stock.' New remote rural hospitals such as the one in Kiri were thus to function as crucial nodes for data collection, bundling and transferring information to the central administration about until then uncharted territories.

The Kiri case shows the far-reaching extent to which the colonial authorities followed the administrative territorial subdivision, even in the ones as inaccessible as Kiri. The administrative boundaries provided the underlying blueprint for the location and action radius of each new rural hospital, while standardized type-plans functioned as an easily reproducible template for the supposedly isotropic Congolese territory. However, Kiri's reality nonetheless proved more complicated. Despite the use of medical passports, people, cattle, mosquitos and flies were constantly on the move, with little to no regard for administrative boundaries. This went against the government's strategies of limiting all forms of 'native nomadism,' in order to secure employment pools that could be employed for the economy's economic valuation.[54] As such, with the construction of remote hospitals such as the one in Kiri, the colonial authorities facilitated the increasingly widespread penetration of colonial 'capillary power' in the

---

[52] AA/GG 15723, Léopoldville/Kiri/Inongo, Passengers list, 1952-1959.

[53] On statistics and hospital infrastructure, see also Chang, *A Genealogy*, 94-128.

[54] Henriet, "Elusive natives," 345.

Congolese rural hinterland.[55] At the same time, the inaccessibility of the Kiri outpost hampered the streamlined top-down implementation of the medical network, and standard procedures had to be adapted to local challenges. The realization of remote *C.M.C.*'s such as the Kiri hospital proved more difficult than the streamlined *modus operandi* of type-plans had suggested.

Aru: Healthcare and border politics

INSERT FIGURE 7 HERE.

If the case of Kiri revealed how not only healthcare, but also state presence was an important aspect of hospital construction in the Congolese interior, than these issues were all the more urgent at the colony's external borders. Although the Ten-Year Plan's medical network was outlined by the Belgian colonial authorities and thus strictly limited to the administrative borders of Belgian Congo, the construction of the Aru hospital reveals how the international spill-over of diseases and patients became a major point of concern for the colonial government. Indeed, besides the socio-economic arguments for constructing a rural hospital in each administrative seat of the colony, geopolitical motives additionally fuelled the Belgian government's implementation of medical infrastructure in frontier regions.

At the end of 1956, a rural hospital was to be constructed in the Aru *territoire*, located in the Orientale Province at the Congolese-Ugandan border. Although the village of Aru was the seat of the territory and a dispensary already existed there, the local Governor of the Orientale province argued for the *C.M.C.* to be located in the Essebi village. Based on a preparatory demographic survey conducted by the local

---

[55] Chang, *A Genealogy*, 11.

medical service, the Governor stated that, in comparison to Aru, Essebi was more easily accessible to a larger part of the African population of the *territoire*. As a result, a hospital in Essebi would provide healthcare to a larger number of the surrounding African patients. Figure 7 depicts the study of the local medical service, as well as informal border crossings used at the time, and illustrates how the argument of the Governor to construct the hospital in Essebi instead of in Aru does seem well-founded.[56]

In a letter to the Léopoldville-based central authorities, the provincial governor expressed his concerns with the fact that over 30 percent of the patients treated in the Aru dispensary were Ugandan, a 'political problem' that would escalate further as these immigrating Ugandan patients were 'part of the Alur people, who are systematically and openly worked upon by politically engaged mine workers, to whom the British are unable to oppose any moderating action.'[57] The general governor recognized the border problem, but argued instead that a rural hospital in Aru would improve and 'facilitate health surveillance at the border.'[58] The provincial governor disagreed, stating that it would be 'an illusion' to think that the hospital could serve as a medical surveillance

---

[56] This map is drawn by the authors based on the letter from the Governor of the Orientale Province to the Ministry of Colonies in Léopoldville, December 30, 1956. (AA/H 4474) / *Carte au 1:3.000.000 Fond Détaillé.*. Section Cartographie et Cadastre du Ministère des Colonies, 1953. (Cahen et al., *Atlas*.)

[57] AA/H 4474 Letter from the Governor of the Orientale Province to the Ministry of Colonies in Léopoldville, based on the demographic survey done by the local medical service, December 30, 1956.

[58] AA/H 4474 Letter from General Governor to the Governor of the Orientale Province, January 22, 1954.

post, 'because the Congolese do not cross the border in Aru,' but at the informal crossings 'in Ndui (on the north) and in Ayiforo and Mount Zeu' (*fig. 7*).[59]

The Minister of Colonies ultimately decided that no hospital would be constructed in Essebi, since the budgets for the *C.M.C.* in Aru foreseen by the Ten-Year Plan had already been inscribed in the decree of the annual budget accounts, and were thus legally binding. He appears to have closely followed the administrative logic of the Ten-Year Plan, and does not respond to the issues of mobility and demographics that were raised by the local government administrators. However, the Minister later quotes in a personal letter to the General Governor in Léopoldville how the Aru hospital's 'situation near the border would allow a sanitary surveillance of the border and would avoid that the natives of the Belgian Congo go to seek treatment in Ugandan territory.' Moreover, he considers the 'continuous infiltration from the Ugandan Alur people' a 'certain political danger', which need to be acted upon.[60] Clearly, constructing medical infrastructure at the border was more than a mere means of healthcare provision, but also became closely interwoven with sanitary surveillance and a larger geopolitical strategy of deterring Ugandan political insurgents to migrate into the Belgian Congo.

By planning the Ten-Year Plan's healthcare scheme as a national network, neatly limited by Congo's colonial borders, central policymakers had overlooked important local dynamics that were at play in frontier regions. It was only when the construction of a hospital in the Aru territory was put on the agenda and local officials warned for issues of migration, that the central services became aware of the

---

[59] AA/H 4474 Letter from the Governor of the Orientale Province to the Ministry of Colonies in Léopoldville, based on the demographic survey done by the local medical service, December 30, 1956.

[60] AA/H 4474 Letter from the Minister of Colonies to the General Governor, May 16, 1957.

geopolitical consequences of constructing healthcare infrastructure at the border. Although the central authorities did not follow the advice of local administrators to move the hospital to another town, Aru's local realities nonetheless confronted them with the fact that Congo's borders were not mere administrative lines drawn on a blank canvas, but had produced important local border dynamics on the ground.

Generic networks, local nodes and muted metis.

In this article, we charted the massive scale and scope of the healthcare campaign under Belgian Congo's Ten-Year Plan. This campaign was at the heart of the Belgian colonial project. It legitimized continued colonial rule, boosted labour productivity, and was used to billboard the image of Belgian Congo as a model colony. To realize such a key but daunting undertaking, the colonial authorities needed a well-oiled administrative apparatus, capable of mass-producing a towering quantity of similar rural hospitals in some of the most remote and inaccessible places across a vast territory. Type-plans for rural hospitals proved crucial government tools to efficiently 'scaffold'[61] the Ten-Year Plan's medical campaign. At first glance, the use of type-plans suggested that the healthcare programme perfectly illustrates 'an imperial or hegemonic planning mentality that excludes the necessary role of local knowledge and know-how.'[62] The diffusionist circulation of type-plans along the administrative chain of command seems to confirm views of Belgian colonial policymaking as a technocratic, top-down practice, that glossed over local realities by preconceiving rural Congo as an irrelevant, flattened, emptiness, only made legible by administrative borders and western cartography.

---

[61] Scriver, "Empire-Building."

[62] Scott, *Seeing*, 6.

While the healthcare programme was still realized by a mainly technocratic government that disseminated and deployed centrally designed type-plans, we've argued that, in reality, colonial policy making nonetheless proved more complex. Already during the healthcare scheme's preparation, locally compiled surveys influenced central decision-making. Similarly, perhaps thanks to the career-long local experience or the 'ethnographic sagacity'[63] of the healthcare scheme's main protagonist, Dr Duren, type-plans were not designed as stringent blueprints. Instead, they functioned as flexible instruments with which local officials could adapt the hospital's architecture to the local climate or healthcare challenges, or to on-site problems such as topography, parcel dimensions or existing roads or trackways. Zooming in on the actual realization of two cases, the Kiri and Aru hospital, illustrated the complexity of colonial policymaking even further, as other motives for constructing a healthcare network, such as state presence and border control, surfaced at the local scale. However, these cases also revealed how the colonial apparatus nonetheless made do and responded to such local challenges by relying on local administrators. While local administrators deviated from standardized procedures for the transport and construction of rural hospitals in inaccessible places such as Kiri, provincial policy makers were given agency to raise questions on local border politics and sanitary surveillance at the Aru border town.

Our nuancing of Belgian colonial statecraft, however, does not imply that we underestimate or renounce the highly coercive and racially unequal nature of Belgian colonial policymaking. On the contrary, even in domains such as healthcare and during times of so-called 'welfare colonialism,' race divided colonial society and the assessment of local knowledge. Of the many local agents involved in the construction of

---

[63] Steinmetz, "The colonial state," 592.

rural hospitals, only European actors were ever engaged in the decision-making process. Only European know-how was qualified as relevant practical knowledge, whereas African 'metis' was ignored or muted. In the post-war period, Africans were speaking up more and more, both in colonial society in general and healthcare policymaking in particular.[64] However, they had little to no impact on the network of hospital infrastructure, as their suggestions were often silenced or overruled.[65] While Belgian Congo's healthcare network was lauded across the globe, the voices of its local, African, patients and staff remained muted.

Still, in planning and realizing the Ten-Year Plan's, the colonial government wasn't exclusively 'seeing like a state,' and its healthcare scheme was not the mere result of a central, omnipotent state implementing a generic network of medical infrastructure. Instead, as various local officials were given the agency to adapt local nodes to the on the ground reality of the vast and varied Congolese rural hinterland, practical know-how or 'metis', although exclusively European, played a much more important role in the Belgian *Bula Matari* than has been long acknowledged.

---

[64] See e.g. the important political role African medical assistants played in the 1950s. Sabakinu, "Paul-Gabriel Dieudonné Bolya."

[65] Several village chiefs had, for instance, petitioned for the construction of a dispensary around their villages. While well-founded, their requests, however, was shoved aside. See e.g.: AA/H 4566, *Demande d'un dispensaire à Kintobongo*, Letter from *Chefs Coutumiers* Kuwimba, Kalenga, Mewoma, Numbi and Mukombe to the royal cabinet in Brussels, 15 March 1956.

We would like to acknowledge Professor Jacob Sabakinu and Professor Donatien Dibwe dia Mwembu for their insightful comments, as well as the several master students who collaborated with us on the seminar research seminar during the academic year 2016-2017 at the Department of Architecture and Urbanism, Ghent University, in order to produce a detailed mapping of the healthcare infrastructure built in the several provinces of the Belgian Congo in the context of the Ten-Year Plan (1949–1959).

References

Azevedo, Mario J. *Historical Perspectives on the State of Health and Health Systems in Africa, Volume 1: the Pre-Colonial and Colonial Eras*. Cham, Switzerland: Palgrave Macmillan, 2017.

Bremner, G.A., Johan Lagae, and Mercedes Volait. "Intersecting Interests: Developments in Networks and Flows of Information and Expertise in Architectural History." *Fabrications* 26, no. 2 (2016): 227-45.

Burke, J. “Développement des services de santé.” in *Médecine et hygiène en Afrique centrale de 1885 à nos jours*, ed. Pieter G. Janssens, Maurice Kivits, and Jacques Vuylsteke, 83-160. Brussels: King Baudouin Foundation, 1992.

Cahen, Lucien, René Cambier, Albert Duren, P Geulette, J Gillardin, Justin Gillet, Pierre Gourou, et al. *Atlas Général Du Congo et du Ruanda-Urundi*. Brussels: Royal Academy for Overseas Sciences, 1948-1960.

Chang, Jiat-Hwee. *A Genealogy of Tropical Architecture: Colonial Networks, Nature and Technoscience*. Abingdon; New York: Routledge, 2016.

De Nys-Ketels, Simon, Johan Lagae, Kristien Geenen, Luce Beeckmans and Trésor Lumfuankenda Bungiena. “Spatial Governmentality and Everyday Hospital Life in Colonial and Postcolonial DR Congo,” in *Neocolonialism and Built Heritage: Echoes of Empire in Asia, Africa, the Middle East and Europe*, ed. Daniel Coslett. New York: Routledge, 2020.

De Nys-Ketels, Simon, Johan Lagae, Laurence Heindryckx and Luce Beeckmans, "« Service des travaux publics, Province de l’Équateur, Congo Belge: “Situation des constructions C.M.C. au 1-9-1954” »," *ABE Journal [Online]* 12 (2017). Online since 26 January 2018, connection on 03 July 2018. URL : http://journals.openedition.org/abe/3940

Duren, Albert Nicolas. "Carte des établissements médicaux importants," in *Atlas Général du Congo Belge et du Ruanda-Urundi*, ed. Cahen, Lucien, René

Cambier, Albert Duren, P Geulette, J Gillardin, Justin Gillet, Pierre Gourou, et al. Brussels: Royal Academy for Overseas Sciences, 1948-1960.

Englebert, P., Tarango, S., and Carter, M. “Dismemberment and Suffocation: A Contribution to the Debate on African Boundaries.” *Comparative Political Studies* 35 no. 10 (2002): 1093-1118.

Fisch, Jörg. “Africa as Terra Nullius: The Berlin Conference and International Law.” in *Bismarck, Europe, and Africa : The Berlin Africa Conference 1884-1885 and the Onset of Partition*, ed. Wolfgang J. Mommsen and Stig Förster. New York: Oxford University Press, 1988.

Fitzmaurice, Andrew. *Sovereignty, Property and Empire, 1500-2000*. Cambridge: Cambridge University Press, 2014.

Foucault, Michel. “Governmentality.” in *The Essential Foucault*, *Selections of Essential Works of Foucault, 1954-1984,* ed. Paul Rabinow and Nikolas Rose, 229-45. New York: The New York Press, 1994.

Foucault, Michel. "The Meshes of Power." In *Space, Knowledge and Power: Foucault and Geography*, ed. Jeremy W. Crampton and Stuart Elden, 153-62. Aldershot: Ashgate, 2007.

Home, Robert. *Of Planting and Planning: the Making of British Colonial Cities*. London: Spon, 1997.

Henriet, Benoît. "“Elusive Natives”: Escaping Colonial Control in the Leverville Oil Palm Concession, Belgian Congo, 1923–1941." *Canadian Journal of African Studies / Revue canadienne des études africaines* 49, no. 2 (2015): 339-61.

Katzenellenbogen, S. “It didn't happen at Berlin: politics, economics and ignorance in the setting of Africa's colonial boundaries.” in *Afican boundaries: barriers, conduits and opportunities,* ed. P. Nugent and A. I. Asiwaju, 21-34. London: Pinter, 1996.

Kisacky, Jeanne. Rise of the Modern Hospital: An Architectural History of Health and Healing, 1870-1940. Pittsburgh: University of Pittsburgh Press, 2017.

Lagae, Johan. “Cracks in the “cordon sanitaire”. Hospital architecture, urban planning and colonial policy in the Belgian Congo, 1920-1960.” Paper presented at the international conference of the International Planning History Society & Institute of Geography and Spatial Planning, University of Lisbon, Portugal, September 5-6, 2013.

Laget, Pierre-Louis, Claude Laroche, Isabelle Duhau, Georges Beisson, Jean-Bernard Cremnitzer, Olivier Faure, and Marie Vives. L'hôpital en France, du Moyen Âge à nos jours: histoire & architecture. Lyon: Lieux Dits éditions, 2016.

Lauro, Amandine. "Maintenir l'ordre dans la colonie modèle, notes sur les désordres urbains et la police des frontières raciales au Congo Belge (1918-1945)," *Crime, Histoire et Sociétés / Crime, History and Societies* 15, no. 2 (2011): 97-121.

Lefebvre, Camille. "We have tailored Africa: French colonialism and the "artificiality" of Africa's borders in the interwar period," *Journal of Historical Geography* 37 (2011): 191-202.

Mathys, Gillian. "People on the Move: Frontiers, Borders, Mobility and History in the Lake Kivu Region 19th-20 Century," PhD diss., Ghent University, 2014.

Ministry of Colonies. *Investir c'est prospérer: le plan décennal pour le développement économique et social du Congo belge 1950-1959*. Brussels: IMIFI, 1960.

Ministry of Colonies. *Rapport annuel sur l'activité de la colonie du Congo Belge*. Brussels: Lesigne, 1908-1958.

Ministry of Colonies, *Plan Décennal Pour Le Développement économique Et Social Du Congo Belge*. Brussels: De Visscher, 1949.

Ministry of Economics, *Annual Statistical Report of Belgium and Belgian Congo*. Brussels: National Institute of Statistics.

Rabinow, Paul and Nikolas S. Rose. "lntroduction," in *The Essential Foucault: Selections from Essential Works of Foucault, 1954-1984*, ed. Paul Rabinow and Nikolas S. Rose, vii-xxxv. New York: New Press, 2003.

Ryckmans, Pierre. *Étapes et jalons : discours prononcés aux séances d'ouverture du Conseil de gouvernement du Congo belge*. Brussels: Larcier, 1946.

Jacob Sabakinu Kivilu, "Paul-Gabriel Dieudonné Bolya: De l'assistant médical à l'homme politique", in La mémoire du Congo. Le temps colonial, ed. Jean-Luc Vellut (Tervuren: Musée Royale De L'Afrique Centrale, 2005), 235–39.

Scott, C James. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven (Conn.): Yale university press, 1998.

Scriver, Peter. "Empire-Building and Thinking in the Public Works Department of British India," in *Colonial Modernities: Building, Dwelling and Architecture in British India and Ceylon*, ed. Peter Scriver and Vikramaditya Prakas, 69-92. London; New York: Routledge, 2007.

Stanard, Matthew G. *Selling the Congo: A History of European Pro-Empire Propaganda and the Making of Belgian Imperialism.* Lincoln: University of Nebraska Press, 2012.

Steinmetz, George. "The Colonial State as a Social Field: Ethnographic Capital and Native Policy in the German Overseas Empire before 1914." *American Sociological Review* 73, no. 4 (2008): 589-612.

U.S. Department of Health, Education, and Welfare. *Annual Report 1955*. Washington: U.S. Government Printing Office, 1955.

Vanhove, Julien. *Histoire du Ministère des Colonies*. Brussels: Royal Academy for Overseas Sciences, 1968.

Vanthemsche, Guy. *Genèse et portée du "Plan décennal" du Congo belge (1949 - 1959)*. Brussels: Royal Academy for Overseas Sciences, 1994.

Wylie, John W. *Landscape*. London: Routledge, 2007.

Young, Crawford. *The African Colonial State in Comparative Perspective*. New Haven: Yale University Press, 1994.

Figure 1. Above: preliminary sketch of a type-plan for rural hospitals; Below: diagram depicting the 'theoretical organization' of the hierarchic hospital network within one territory. AA/3DG 984, "Evolution of our methods of medical assistance in the rural zones of the colony," report by Dr. Duren to the Congrès Colonial Belge, Section d'Hygiène et Démographie, September 1947.

Figure 2. View of the easily transportable binder of type-plans, with the plan of overall spatial lay-out of a *C.M.C* unfolded. The binder contained more unfoldable detailed plans of each particular pavilion. AA/GG 18186.

Figure 3. Footprints of rural state hospitals constructed in the Belgian Congo under the Ten-Year Plan (1949-1959). Kiri and Aru, the two case-studies discussed below, are indicated in black, while Kikwit, Kamina and Kirotshe, the rural hospitals depicted in figure 5, are indicated with white footprints. The figure illustrates how the same type-plan was reused across the vast colonial territory, but how its footprint greatly varied: the various hospitals differed in orientation, size, and overall spatial lay-out. As discussed below, these adaptations were in response to local conditions of site, demographics, budget, or climate.

Figure 4. Excerpts of *Plans d'Ensemble* and sections of (from left to right) the central, Katangese and Orientale departments, depicting the various financial and climatological provincial adjustments. AA/GG 18186; AA/GG 960; AA/GG 936.

Figure 5. Examples of on the ground adaptations of type-plans. In Kikwit, a city situated in a densely populated area, the modular type-plans, reoriented to the existing street grid, allowed multiple expansions over various construction phases; in Kamina, the hospital design was constructed around existing termite hills; in Kirotshe, the steep hospital site necessitated an adapted overall hospital plan, as well as extensive ground works and complex foundations. AA/3DG 549; AA/GG 12395. Data aerial views: Google, DigitalGlobe. Image Kamina: https://www.caid.cd/wp-content/gallery/territoire-de-kamina/1.JPG (accessed April 4, 2019).

Figure 6. *Centre Médico-Chirurgical* in Kiri in the Bas-Congo Province, 1952. The village was only accessible via the Lotoi river coming from Inongo for the shipment of construction materials.

Figure 7. Population density in the *territoire* of Aru in the Oriental Province, 1956. The map illustrates how Essebi was located in a more densely populated region, while Aru was situated on the main road connecting to Arua, Uganda.