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# *Development Visions in Ghana: From Design Schools and Building Research to Tema New Town*

*by* IAIN JACKSON

ABSTRACT

This article investigates a series of development strategies pursued in Ghana from the mid-1940s under British colonial rule to the early independence period of the 1960s, seeking to understand how the pace and location of development affected the wider built fabric and especially housing production. While two contrasting visions emerge — of rural extractive agriculture versus industrial urban manufacturing — the impact of these endeavours was most strongly felt in the accompanying housing developments. Attempts to create a new artisan school capable of manufacturing building materials, and a laboratory tasked with developing new local building materials, sought to preserve a mainly rural-based population and lifestyle while reducing costs and making dwellings more durable. However, with advancing industrialisation and rapidly expanding urban centres, efforts to accommodate this change with revised urban boundaries and new construction standards failed adequately to address the housing issues and revealed fundamental problems in the governance of newly urbanising and suburban settlements. Could the solution be to 'start again', to build a new town without the difficulties of the past? This was the approach of the elected nationalist government that commissioned the new town of Tema, east of the capital Accra. As one of the grand projects of the then prime minister, Kwame Nkrumah, Tema has been the focus of much scholarly attention, but a new source has recently come to light that changes understanding of the project. The notebooks kept by Michael Hirst, one of those charged with its design and realisation, show how Tema became an unwitting design school with its own series of trials and tests performed by a team of newly qualified architects. It was not only a political new beginning, but also an experimental attempt to create a new urban environment built on the promise of an industrialised future.

Housing and construction were central to debates over the economic and social development of Ghana from the mid-1940s to the 1960s.[1] A complex series of factors influenced the discussion, not least the issues of migrant labour, an increasing urban population and the political aspiration for a particular notion of progress. Underlying these varied but often interdependent issues was the fundamental question of how Ghana might shift its economy from one of 'co-dependency', providing raw materials to Europe, to an industrialised nation.

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From the 1930s, British colonial policy had veered between resisting industrial development and trying to cultivate a particular version of it, often at the same time.[2] In the interests of protecting UK-based manufacturing, the British Board of Trade had strongly resisted attempts at colonial industrialisation, whereas the Colonial Office took a more proactive role in encouraging these developments (often with foreign capital).[3] While promotion of development may have boosted wartime morale and was perhaps a hollow gesture towards placating American and African critics, there was, as Larry Butler noted, 'a growing sense of frustration, apparently sincere, that an important policy initiative was being systematically obstructed by other agencies of the Imperial government'.[4] The Colonial Development and Welfare Act of 1940 allocated funds to promote development and research in the colonies, and the establishment in 1943 of an institute focusing on African crafts, artisans and techniques formed part of this initiative.

Rather than having an educational, design-informed approach, the institute was a technological response to improving building 'efficiency' and material performance — essentially a West African version of the UK's Building Research Station. The thinking was that Africa could provide a kind of 'laboratory' or testbed for new materials and processes based on existing local techniques. The objective was to create a particular kind of efficiency, to reduce waste and possibly bring to market new materials, while also minimising housing costs for labour through a self-build programme. The craft of building and communal experience were considered secondary to technical objectives, such as establishing a minimum adobe wall thickness and reducing maintenance requirements. It was hoped that, by 'improving' rural dwellings, the population flow to urban centres might be stemmed and labour would have increased time for paid employment. The enforced changes, aimed at improving construction quality and the ability to levy rates, were largely unaffordable for the residents and had the unintended consequence of accelerating migration, as well as provoking an active resistance against them. Discontent over housing was one of the main factors in the civil unrest of 1948, and just a year later the constitution for a new nation was drafted. From 1951, Ghana had an elected prime minister, Kwame Nkrumah, but remained a colony within the British empire until independence in 1957. The tension between quasi-democracy and colonial rule had major ramifications for the built environment.

The conflicting power structure might suggest unpredictable, confused and possibly confrontational conditions, but instead — fuelled by optimism, development aid grants and business investment — the 1950s brought a major boom in construction accompanied by an innovative approach to design. This was largely confined to urban areas, however, and despite the attention given to rural housing its impact outside of Ghana's nascent cities was limited. Nkrumah's advisers in this period recommended an incremental strategy of agricultural development, to take place in advance of the development of large-scale manufacturing. But Nkrumah considered this as essentially a colonial model and was adamant in pursuing wide-scale industrial development through large programmes such as the Volta River project.[5]

Industrial development required a steady and stable workforce, rather than seasonal or demand-driven labour. As a government report of 1952 put it, 'the development plan cannot be wholly carried out by using such [migrant labour]. What is needed is a solid core of wage-earners permanently employed, and permanently settled, in

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Fig. 1. *Achimota School, Accra, by Walter Frederick Hedges, 1920, photograph of 2019 by the author*

the towns.'[6] This 'permanent settlement' demanded the replacement of existing self-built or 'bachelor' dorms with purpose-built homes accompanied by wider amenities. Nkrumah's solution was to create a new town located close to the harbour development east of Accra, and a series of warehouses and factories. It was a move that would shift the economic structure of the country while lessening the rural 'tribal' and village allegiances so carefully encouraged and exploited by the colonial regime.

## CRAFT AND EXPERIMENTATION: AN AFRICAN BAUHAUS

The sudden expansion of urban Accra was prompted by the cocoa boom from the 1920s.[7] Uncoordinated and speculative development continued into the 1930s, resulting in the extension of the municipal boundaries and attempts to enforce building regulations and sanitation measures.[8] While the out-of-town settlements were beyond this jurisdiction, they began to receive increasing planning attention as a response to colonial fears of a rising urbanised population. According to Butler, the colonial regime hoped that the urban 'drift' could be stopped by improving rural conditions and encouraging 'smaller-scale village craft industries to supplement, not supplant, peasant farmers' incomes'.[9] The colonial idea was to revitalise crafts, increase local production and reduce imports. This was to be achieved through a new educational programme at the elite Achimota School, which had been founded in Accra in the 1920s (Fig. 1). The initiative, approved by the Advisory Committee on Education in 1940, was the brainchild of the Russian

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émigré artist Herbert Vladimir Meyerowitz (1900–1945). The goal of the West African Institute of Industries, Arts and Social Science was to combine arts and industry: in Meyerowitz's words, 'a marriage of the old aesthetic skill and power to [*sic*] modern technique' which would 'inaugurate local craft industries'.[10] West African craft and industry were surveyed and a museum established to prevent the 'extinction of interesting and often beautiful construction and designs'.[11] There appeared a genuine passion for West African creativity and craft, although it was somewhat naive in hoping to record, document and organise this production without shaping and reforming it. In 1943, when the institute was still in its infancy, it received a major grant of £127,000 from the Colonial Development and Welfare fund to expand its activities and production.[12] A four-year apprentice and master system was established and, following enthusiastic subscription, the staff and students visited artisans across West Africa.

The aim of the institute was to part-industrialise the crafts, moving from small-scale production towards mechanised manufacture of goods without losing a sense of authentic creativity.[13] Rather than relying on poor-quality and expensive, imported products, it was felt that better-quality goods could be made more cheaply locally, with the institute producing building materials, products and household goods from its campus. While a fascination with 'craft' was arguably nostalgic and retrograde in the face of oncoming technology, it held a nationalist appeal and built confidence and appreciation in West African 'skill and taste'. It was paternalistic, but also a sincere attempt to provide a creative and fertile framework for production.[14]

A report on the Achimota institute was commissioned by the Colonial Office from Henry Morris (1889–1961), the chief education officer for Cambridgeshire, and he visited Ghana in 1946. The institute's initial progress was severely hampered by the war and loss of key personnel, but Morris was impressed by its potential and he suggested broadening the remit so it became an 'Institute of Architecture, Planning and Design'.[15] Morris was renowned for the village colleges that he had established in Cambridgeshire, not least for commissioning Walter Gropius to design Impington Village College, and it was this model he had in mind for West Africa. The report stated: 'It would be wise to adopt the method which Gropius employed at the Bauhaus — the dual method of training whereby the designer was taught by a craftsman-technician and by an artist-designer, working together.'[16] Morris noted that architectural education was absent from the West African education reports and did not feature in the prospectus of either the Ibadan or Gold Coast colleges. With a new architecture/design institute founded on these principles, Achimota could have developed into a major creative force focused on local technique and taste, as well as industrial processes.

Despite the Colonial Office favouring industrialisation and development, it did not respond positively to Morris's suggestions. He was approaching the problem from the perspective of a cultural, design-led education, whereas the Colonial Office saw the solution as commercial manufacturing plants. Without ongoing capital or Colonial Office endorsement, the Achimota vision was not a workable model. The school could not transition from artisan handicraft into large-scale production, nor compete effectively with imported goods. By the time Morris completed his report, Meyerowitz had died and the institute failed to maintain its early momentum, falling into insignificance and closing in 1947.

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The failure of the Achimota initiative meant that design/architecture and industrial manufacturing remained distinct, yet they continued to intersect over the problem of housing. Regardless of the development model, housing was at the fore and a major arena for testing materials, attracting and retaining labour and responding to the wider development agenda. In this regard, the vision of a radical, locally inflected design school gave way to the model of a building materials laboratory. It was not the craft of production that was of interest here, but instead the use of readily available materials and local construction techniques. The intention was to enhance the quality of dwellings in order both to free labour from perennial housing repairs and to reduce reliance on imported materials. Imported building materials were not only taking up valuable shipping space at the expense of other commodities, but were also increasing the cost of construction to prohibitive levels. By encouraging the use of local but enhanced building materials and techniques, housing could become more affordable, labour could spend more time on profitable activity and the quantity of non-construction imported products could increase. It appeared the ideal solution for the political bodies and colonial merchants who wanted to direct labour into regular employment.

## ALFRED ALCOCK: AFRICA AS LABORATORY

A principal but largely unknown figure in promoting local materials and techniques was the Kumasi town engineer Alfred Edward Savige Alcock (1902–1991). Born in the UK, but spending his professional life working throughout the British empire, Alcock trained as a civil engineer and, after a brief period in Sri Lanka, began working as a sanitation engineer in Ghana in 1936. His role and interests quickly developed beyond sanitation and infrastructure towards housing and village design, and he was appointed town planning officer in 1945, a post he held until 1956.[17] Alcock sought to address the problem of expensive imported materials (and overland transportation) by using readily available materials and skills.[18] His approach to construction also responded to post-war restrictions and limited supplies of firewood for burning bricks.[19] But there was a lack of data on how best to deploy these resources, such as adobe, and little desire for investment on the part of the construction industry.

The impetus for this type of practical building research came with the appointment in 1944 of the British architect Maxwell Fry (1899–1987) as planning adviser to the resident minister. In a private memorandum of August that year, entitled 'A Building Research Station for Gold Coast', Fry set out the argument.

> Recent investigations into design and construction of African and European housing are continually being halted for lack of exact knowledge and information on elementary subjects, such as what is the economic wall? Will laterite [a soil rich in iron oxide, prevalent throughout West Africa] mix with cement under pressure? How can African houses be ventilated without lack of security? What parts of [a] building might it pay to mass produce?[20]

Fry thought the solution to these questions was to establish both a laboratory and a materials library, replicating the UK's Building Research Station (BRS) and Building Centre.[21] The effect was immediate and just two months later, in October 1944, £1,000

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Fig. 2. *Alcock's experimental 'swishcrete' housing in Kumasi, photograph of 1944 (private collection)*

was allocated to establishing a West African Building Research Station (WABRS) in Kumasi, with seconded Royal Engineers as assistants.[22] Alcock's role at the WABRS was secretary and executive officer and he authored its laboratory experiment reports.[23] While the technical remit of the WABRS was supplemented with sociological, medical and agricultural matters, its core focus was on developing inexpensive local materials and using existing knowledge and skills. Unlike the creative orientation of the Institute of Industries, Arts and Social Science, the concern was applied approaches to construction, with the quantitative reassurance of generating 'scientific' and 'proven' data to specific questions. A particular concern was the creation of a 'stabilised mud wall' by adding cement to 'swish' (sand, clay and laterite soil). There was also testing of various forms of wall construction such as rammed earth and sun-baked blocks, as well as roof tiles from laterite aggregate salvaged from concrete drains.[24]

Alcock contacted the BRS in the UK for advice on the ideal concrete-swish block mix and sent soil samples for analysis.[25] He also enclosed photographs of his experimental projects, revealing the laterite courses and the cracked façade that he hoped to eradicate through the research. The photographs demonstrate the hybrid bungalow-style hipped roof combined with adobe wall construction (Fig. 2).[26] The search was for a method to reduce the wall thickness and thereby improve labour and cost efficiency. Cement was the most successful stabilising agent, but others were tested, notably sodium stearate, which could be produced from local palm oil and was therefore highly attractive, potentially resulting in new products and markets.

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Alcock's approach reveals a sensitivity in appreciating local methods and materials.[27] By testing and analysing the data, he believed, a more effective use of time and materials could be achieved, and his publications — notably an article in *Ekistics* in 1958 — helped dispel prejudice against adobe construction by proving its durability and structural integrity.[28] Alcock's work enabled a list of quantified materials to be known, and minimised construction time.[29] The price of these changes was a loss of the annual rhythms, narratives and decorative embellishment associated with local construction. With 'scientifically' proven and enhanced house construction emerged a more regulated, standardised trades and contractor model. Regulating construction, increasing specifications and imposing rates also steered (if not forced) the labourer towards more formal and regular employment, in order to be able to fund these directives, while also enabling value and taxation rates to be calculated. Dwellings had shifted from shelter to a form of collateral.

## REGULATING THE URBAN PERIPHERY

While Alcock's efforts were directed at non-urban settlements, the expanding urban centres rapidly encroached into these territories and new regulations were introduced to extend municipal boundaries in 1945, and again in 1950.[30] Kumasi's boundaries were expanded to incorporate several surrounding villages and suburban areas into the broader town plan.[31] With the expansion of the municipal area, a particular construction standard was imposed on the properties now within its limits. The new rules that required extensive property renovations and all new construction to be in concrete blocks provoked extensive complaints.[32] Letters from fifty-five leaders and elders from the surrounding villages were sent in February 1954 to the Asantehene (ruler of the Asante people) expressing frustration with the rules and resultant costs.[33] It was an effective appeal and two years later, as we shall see, the regulations were revised to allow for greater exemption.[34]

The demolition of perfectly functional housing, including historic structures, as a result of the revised peripheral expansion also faced resistance. At Aboabo (now a suburb of Kumasi), the proposal was to clear and replace the entire settlement to conform with the new regulations, but instead, due to the insistence of the Asantehene, some of the 'higher quality' dwellings were retained. In November 1951, the Asantehene wrote to the district commissioner explaining that, 'to save such buildings, I took the trouble of making a chain survey to find their accurate positions on the plans so that I may prepare the layout'.[35] In 'saving' these structures, the Asantehene had the power and means to take control over development, adopting a more nuanced approach than the blunt erasure originally proposed. The exchange also reveals the close relationship between the colonial administration and local rulers. The colonial regime administered its operations through this interface, but it was also a means for contesting and challenging decisions.

Part of the rationale for expanding the municipal boundaries and demolishing the villages was to facilitate the installation of new sanitation, but problems quickly arose because there was no maintenance plan and the new facilities stopped working or were abandoned. The governance was confused in that, as the district commissioner

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observed as early as January 1946, neither the native authority nor the town council took responsibility for maintaining the sanitation of the villages.[36] Maintenance of older dilapidated buildings was prohibited (as they were supposed to be replaced) and the new construction methods proved too expensive, resulting in the rapid deterioration and subsequent demolition of much of the existing stock, with minimal compensation paid to the residents.

The problem was that the colonial administration enforced high construction standards and expected the villages/suburban areas to generate the finance to fund these improvements through, for example, wage labour. Equally, when the town boundaries were extended and rates levied, residents expected proper sanitation and adequate amenities. In practice, however, the municipality fined the villages for failing to comply with the new standards while at the same time imposing higher municipal taxation. The unintended consequence of 'development' and improved standards was thus a fiscal bind that made paid labour and migration to the towns more attractive to the village resident and caused rural housing quality to deteriorate further.

Other problems arose from the collection of tax and the use of communal labour for maintenance projects. In Aboabo, the only funds collected by the administration were from market fees; all other improvement works were funded from so-called 'communal labour', a highly controversial system that exploited the old collaborative model but now extended it to other tasks, such as road building, bridge construction, and so on. However, as the colonial approach of 'indirect rule' (that is, governance using local leaders and laws) waned, greater numbers migrated away for work and chieftaincy gave way to party politics. Communal construction, with its forced labour connotations, was gradually replaced with individual efforts rebranded as 'self-build'.[37]

Alcock tried to address these concerns with the planned urban villages that he instigated at various sites, including the Kumasi suburbs of Asawasi (from 1945) and Sakumona (from 1951). He developed a system of partial prefabrication and standardisation of certain elements (such as roof trusses, door and window frames, sanitation arrangements), while also trying to recruit labour through the 'rural training centre' established at Panfukrom in 1955, at which untrained workers would learn the necessary skills — part of a plan to employ ex-servicemen after the second world war.[38] Alcock's new villages included social and educational amenities, with a number of housing types, built from swishcrete blocks, that followed the site contours rather than the conventional grid layout.[39] The settlement was set out with 'the skeleton of the houses [...] constructed by the Department of Housing, their completion being left to the villagers themselves with the guidance of the technical staff of the Department'.[40] At Asawasi, the land for the 'experimental portion' was leased to the government by the Asantehene for a period of thirty years rent-free, after which it would revert. Government officials with long service were given priority in the housing allocation, which thereby became a means of rewarding 'loyalty', although the high specification prompted considerable interest, including from the Asantehene.[41]

As a way of building affordable housing, the self-build approach using local materials in a more 'scientific' manner seemed a potential solution, as well as retaining some of the communal building practices. However, it was not carried forward on a scale that could counter the migration to the city. The focus on the suburbs meant that housing

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Fig. 3. *Community Centre and Marine Drive, Accra, photograph of 1958 by Michael Hirst*

in the cities was neglected, resulting in major congestion and informal, unregulated development. From 1944, £800,000 was diverted towards clearing 'slums', but very little went on building essential housing.[42] Former servicemen vehemently protested over failed wartime promises and the lack of housing and employment, frustrations that erupted into wide-scale rioting across Accra in February 1948.

Immediately following the riots, an enquiry was set up, chaired by Aiken Watson. The Watson report, published in 1948, identified housing as a major source of social unrest and stated that it was 'appalled by some of the areas in Accra which reflect the industrial revolution at its worst'.[43] Three years later conditions remained much the same, as the colonial administration admitted: 'The Gold Coast [now Ghana] has a serious housing problem. It was impossible during the war years, to meet the normal housing need, and, since the war, lack of material and staff have hampered progress.'[44]

Political pressure also came from the National Federation of Gold Coast Women, founded by Evelyn Amarteifio (1916–1997) and others in 1953. Following a debate on the 'lack of adequate housing' held in Accra's Community Centre, the federation wrote to the minister of local government and housing in December 1953 stating it 'was a most urgent matter' and directly correlated to broader social problems of 'broken families, juvenile delinquency, and ill health'.[45] The federation requested consultation in future discussions concerning housing and representation on relevant committees (it also, among other things, commissioned architectural models and a film on suitable tropical housing). It was a powerful organisation, and its demands appear to have been met

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when major changes to the Accra building regulations were adopted in 1956.[46] The new building codes were essentially a two-tier system, catering for 'the small dwelling on the one hand and the large city block on the other', recognising that these types of construction 'have little in common'. Explicitly the new regulations acknowledged the necessity of compromise and the impossibility of sudden regulatory change.[47]

## 'WHEN YOU THINK OF GHANA YOU MUST THINK OF ACCRA'[48]

The general election of 1951 resulted in a landslide victory for Nkrumah's Convention People's Party. For the electorate, housing was one of the most important issues and Nkrumah's government was quick to recognise this potency. Nkrumah was determined not to pursue the self-build approach, which he felt was too entrenched within the colonial system and in any case was far too timid for the vision he had in mind. His plan, announced in 1952, was to build a new port city, complete with innovative and improved housing at the highest standards. Located only eighteen miles from the centre of Accra, the new city of Tema would demonstrate Nkrumah's commitment to industrial development and that the new Ghana was at the centre of a pan-African vision.

The decision to build a new town so close to the existing capital raised questions about Accra's future, and 'whether the seat of government would also be moved'.[49] The Ministry of Local Government pondered whether all efforts should be directed towards 'making this town the first-class modern city the Prime Minister envisages', rather than funding Accra with its 'legacies of the past to hamper its development'.[50] Other members of the Accra Development Committee were also concerned about the impact on existing trade, and feared that 'population, business, trade and commerce' would abandon Accra.[51] To prevent this, a special fund was set up in 1954 for various improvements, including the construction of Marine Drive from Christiansborg Castle to Accra's Community Centre (Fig. 3), with Geoffrey Jellicoe (1900–1996) as design consultant. The area around the law courts was seen as a principal site for a constellation of modern 'impressive buildings', while a short distance inland, reached via an improved road network, was the new 'international standard' Ambassador Hotel.[52]

Nkrumah viewed Tema as an industrial appendage to Accra, freeing up space and relieving the capital of its gritty industry, congestion and port. Tema grabbed the development headlines, but the desire was always to retain and 'improve' Accra as the capital. Nkrumah took a personal interest in the 'symbols of the nation', which he carefully scrutinised and even created.[53] Tema was very much one of these symbols, but it was Accra that received the ceremonial archway, parade grounds and other such nationalist gestures, while Tema was to embrace industrial production.[54]

With Tema providing efficient porterage and docks, Accra's old surfboat harbour and the congested districts of Jamestown and Usshertown (the old colonial mercantile centres, as well as strongholds of the traditional seats of local power and influence) could be allowed to decline, having been long condemned as 'unhealthy' places.[55] This would make way for the larger commercial and financial offices to expand into the plots adjacent to the High Street.[56] Because these were prime real-estate areas overlooking the sea, displacement of the small (mainly African) companies would suit the commercial desires of the international business community.

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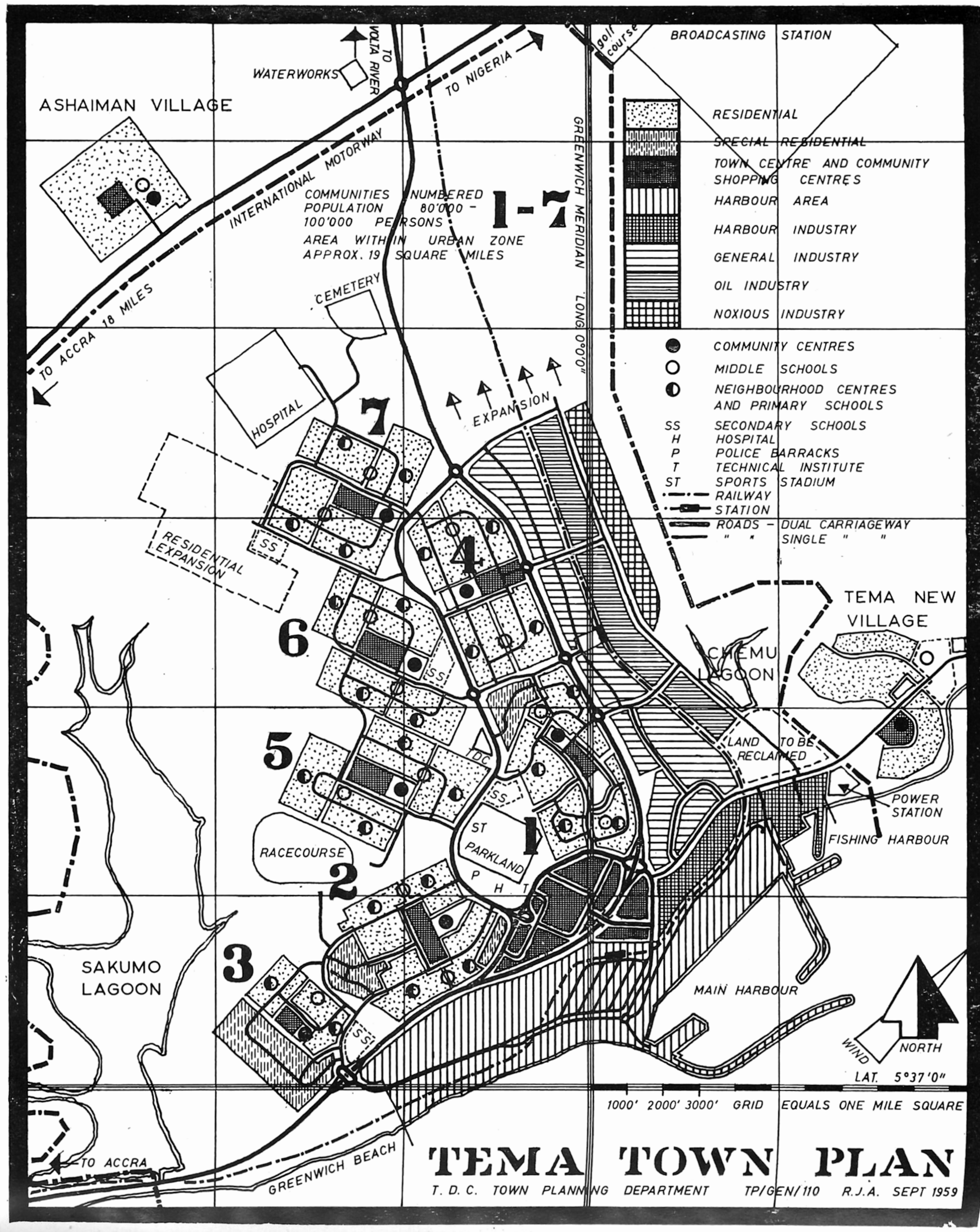


Fig. 4. *Tema Development Corporation, Tema Town Plan by A. E. S. Alcock, September 1959 (private collection)*

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These projects appeased the electorate and satisfied Nkrumah's desire for ambitious development, but others, including Nkrumah's economic adviser Arthur Lewis (1915–1991), were concerned. Lewis did not agree with the vast funds being spent on Accra and the pace of industrial reform, stating in 1958:

> I find it immoral to tax poor people all over the country, and use the proceeds to beautify Accra, when 80 per cent of our people still live in towns and villages with no water, or other elementary amenities. And secondly, wasteful expenditure on prestige objects seems to me the worst form of inferiority complex.[57]

This harsh critique set out the dilemma Nkrumah faced. Lewis was making a case for the smaller rural settlements and a more gradual, evenly distributed approach to change, but this lacked the impact Nkrumah desired. He wanted to construct a particular view of Ghana, through Accra, of an impressive entrepot where foreign dignitaries could be entertained and accommodated and future deals made. Although Lewis was sceptical of Accra's gentrification (or at least the polishing of certain districts), he recognised the need to shift perceptions of the country as a poor African nation. While development grants brought about certain physical changes, they were also suggestive of need, poverty and dependence. A renewed capital city, and nearby facilities for trade, production and shipping, were all part of the package to attract investment and present the case for postcolonial revival.

## THE ALMOST POSTCOLONIAL CITY

In 1952, Alcock prepared a masterplan and accompanying report for Tema new town, although he was to have no involvement in the scheme's execution (Fig. 4).[58] A new organisation called the Tema Development Corporation (TDC) was founded on 1 October 1953, charged by the government with the 'duty of planning and developing the new town of Tema according to the most modern concepts including the provision of a water-borne sewerage system'.[59] A special ordinance allowed the acquisition of 63 square miles for the purpose of building a town and port, with the TDC acting as local authority and developer.[60] The aim was to prevent speculative development, preserve agricultural land and ensure various facilities were properly provided, as well as securing a town boundary that would avoid gradual expansion (and the accompanying regulatory/governance problems, as discussed above).[61] It was a decisive, executive structure equipped for converting 'empty bush' into an 'estate' ripe for development.[62]

Despite the fanfare and high hopes, progress was slow, and the staff — including just two architects — were seconded from other government departments. The chair of the management committee was Sir Tsibu Darku (1909–1982), a paramount ruler, member of the failed United Gold Coast Convention party and Nkrumah's 'former foe'.[63] In making this appointment, Nkrumah was acknowledging the old order's prestige while simultaneously keeping his rivals close and entrusting them (or perhaps keeping them occupied) with high-risk and difficult ventures. As one of 'the managers for the colonial administration of the African apparatus of government', Darku, 'that pillar of chiefly establishment', lent a legitimacy to the project. [64] For some on

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Fig. 5. *Tema Community 1, CEO housing by Jane Drew, 1957, photograph of 1957 by Michael Hirst*

the far left, such as Nkrumah's attorney general Geoffrey Bing (1909–1977), he was a collaborator with the colonial regime's 'informal partnership against the intellectuals', but this was not entirely fair.[65] Darku had experience establishing public healthcare facilities and shared Alcock's view that 'the new town should not be considered solely as a vast housing estate'.[66] Alcock sought to 'provide a proper socio-economic balance, local employment (in addition to harbour work) and a representative mixture of social groups'.[67] Health in a broader sense featured highly on Alcock's agenda, with houses facing 'footpaths and open spaces planted with trees, shrubs and flowers and provided with seats in shady places'.[68]

As precedents, Alcock cited the well-thumbed Howard and Geddes tracts, and the lesser-known 'Reilly Greens'.[69] It was a serendipitous informality of the 'village green' that he desired. There remained a paternalistic concern over Africans living in an urban context, and the belief that a 'village', even several set within a larger settlement, was more desirable than an overt attempt at urbanity. Government-financed factories were built close to the harbour and leased on favourable terms to attract investment, and the worker housing featured as part of this 'package'.[70] Seven residential 'communities' were proposed, each further divided into four 'neighbourhoods' housing 3,000 residents, along with shops and schools, and all within a 20-minute walk from the harbour.[71] Larger boulevard-type roads were positioned around the periphery of the communities, with a central spine road leading to larger shops, municipal offices and cultural institutions in the town centre.[72]

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Fig. 6. *Tema Community 1, flats by Drake and Lasdun, 1957, photograph of 1957 by Michael Hirst*

The housing was designed to serve four broad economic/social groups, with various design types for each group. The first dwellings were basic terraces of individual rooms with shared 'ablution blocks', intended for migrating single men.[73] Known as the 'labour lines', they were similar to colonial mining-town housing and were seen from the outset as temporary accommodation for the initial labour force.[74] At the other extreme were seven large Group One 'CEO villas' (Fig. 5) and four blocks of apartments for consultants and professionals (Fig. 6), designed by the prominent British architects Jane Drew (1911–1996), Lindsey Drake (1909–1980) and Denys Lasdun (1914–2001).

These initial houses were almost symbolic gestures to avoid an embarrassing false start — but with no overall architect-planner in charge, coordination was limited and progress slow. The ablution blocks were built and the sanitaryware was installed, but they remained unconnected to the water supply or sewage system.[75] Once these projects were 'completed', no other architectural consultants were employed on the project and instead the TDC established an in-house design team.[76]

The first chief architect to be appointed was Theodore Shealtiel Clerk (1909–1965), at the time Ghana's only qualified African architect.[77] Clerk's well-connected missionary family funded his education at Achimota School, where he met Nkrumah, and he remained a close confidant. He was awarded a Commonwealth scholarship to read architecture at Edinburgh, graduating in 1943. At Tema, his role required political acumen: as the Tema Board contained some of Nkrumah's political adversaries, Clerk's time was spent steering confrontational committee meetings and placating criticism.

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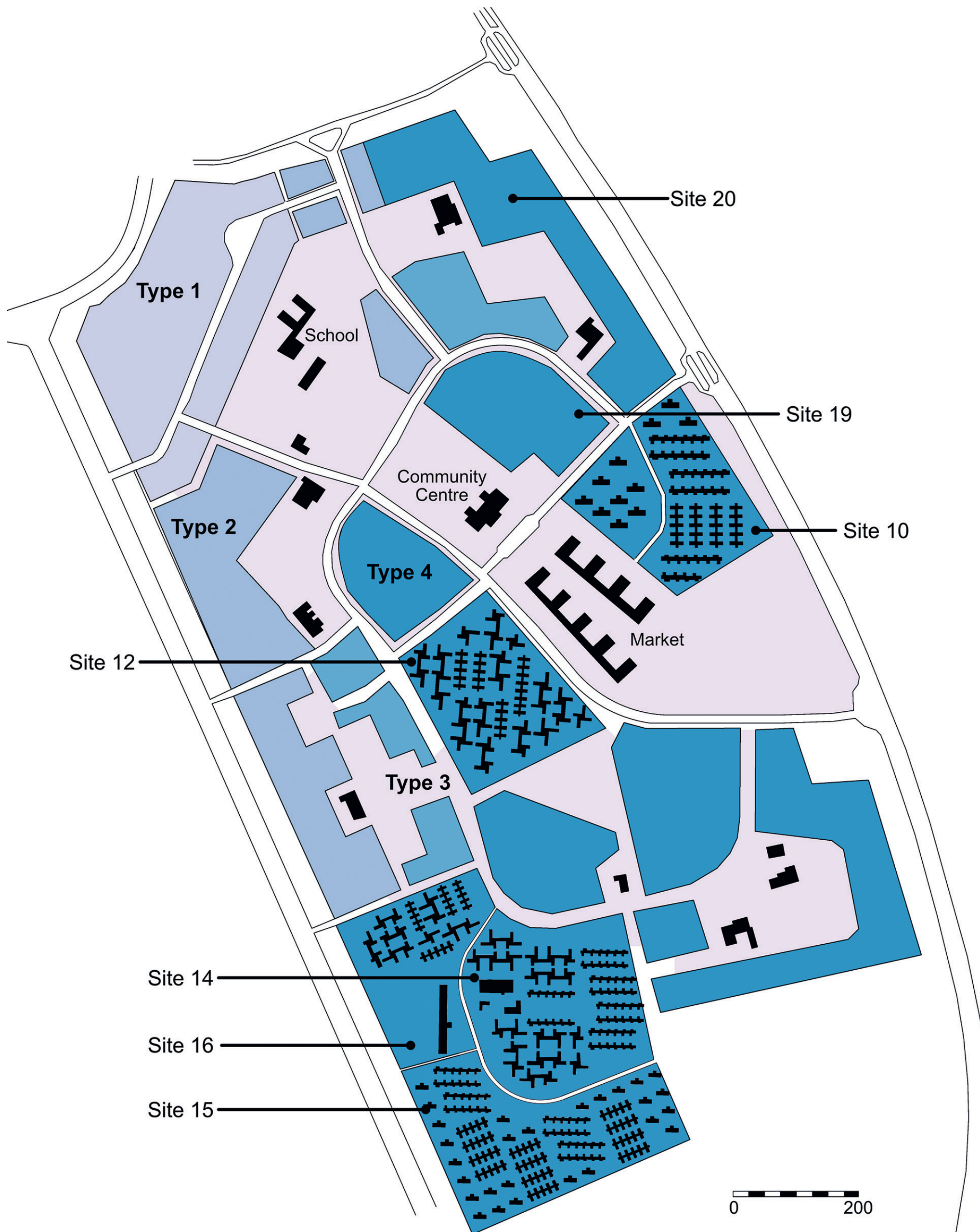


Fig. 7. *Tema Community 1, layout plan showing housing types and site numbers, redrawn by the author from various plans belonging to Michael Hirst*

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Fig. 8. *Tema Community 1, maisonettes by Drake and Lasdun, 1957, photograph of 1957 by Michael Hirst*

Working under Clerk's direction was a group of aspiring architects, recruited in June 1955 as students from the newly established Department of Tropical Architecture (DTA) of the Architectural Association (AA).[78] From the course's inaugural cohort, Dudley ('Tig') Duck, H. Graham Herbert, Michael J. Hirst and Kenneth Frampton were interviewed by Ivor Cummings (1913–1992), a senior official and the only Black officer in the Colonial Office.[79] Frampton decided not to go, but the rest gradually assembled in Accra during the first half of 1956. Here they joined a group with much greater experience: David Gillies-Reyburn (1925–2010; AA alumnus), Dennis C. Robinson (1921–1981) and Norman J. Holman (1928–1992[?]; Liverpool School of Architecture alumnus).[80] Holman had previously worked on the UK New Towns, which served as precedents for the layouts and procedures adopted at Tema; he took responsibility for the day-to-day management of the office, working with Clerk. Robinson oversaw all town planning matters. He had studied at the AA's affiliated School of Planning and Research for Regional Development, before working in British Guiana.[81]

Instead of commissioning external consultants, or expanding on Alcock's grass-roots approach, a 'local authority' multi-disciplinary practice was formed, based on a UK new towns model. The design methodology was immersive and offered scope for working directly with the future residents. As soon as the TDC's purpose-built offices in Tema were completed, the design team left the 'wooden shack offices' on Accra's Dodowah Road to live and work on site.[82]

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Fig. 9. *Independence day carnival float in Tema, March 1957, photograph by Michael Hirst*

## HOUSING IN TEMA

Community 1 at Tema was to be the test case and opportunity for resolving the housing types (Fig. 7). The architects were housed in Drake and Lasdun's flats and maisonettes, which were a clear rejection of the low-density bungalow layout of Accra. The shift in sanitation and service standards was met by equally bold forms of 'capital-intensive technology and materials'.[83] Perforated concrete blocks, interlocking geometric forms, exaggerated cantilevers and overhangs protected the latest Australian aluminium and glass louvres (Fig. 8). Alcock had earlier proposed multi-storey flats in Jamestown, claiming that 'height is not always used to increase density, but to increase open space[,] preserving light, air and amenity, for the greater number of people'.[84] While climatic justification remained at the fore, it was not the only driver, and a lexicon developed of exposed concrete, decorative screens and large interlocking geometric forms.

It was these projects that were depicted in wire and papier-mâché carnival floats for the independence day parade held on 6 March 1957 (Fig. 9). Exaggerated models of towering buildings represented the advanced ambition of the town, while nautical references paid homage to its history as a fishing village. Yet, despite the flamboyant independence carnival display, Tema was still very much a building site and the problem of how to house 84,000 people was not yet resolved. Drake and Lasdun's high-end flats would only accommodate the well-paid professional classes; the majority of the new residents required more affordable solutions that could be built quickly.

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Fig. 10. *Tema Community 1, site 19, Group Four housing, 1958, photograph of 1958 by Michael Hirst*

This process of making the new town and developing mass housing solutions did not follow a prescriptive or predetermined plan, but was rather a series of incremental trials. The process was meticulously recorded by Michael Hirst on site, and the evidence provided in his notebooks is supplemented by a series of retrospective memoirs composed from diary entries.[85] This documentation reveals a more complex, fragmented and even fragile type of architectural production and synthesis — an important foil to the official records, published reports, commissioned photographs and highly curated editorials. The architectural press tends to centralise the architect as protagonist and decision-maker, whereas Hirst's account reveals a more collaborative and incremental approach, more akin to 'the science of muddling through'.[86]

The largest number of houses were in Group Three and Group Four. Before constructing these types across the entire town, samples were designed by Graham Herbert and constructed on sites 19 and 20 (Fig. 10). 'Interesting costly prototypes', noted Hirst, 'not repeated', although they appear to have been later imitated by the Public Works Department elsewhere in Accra.[87] Other test designs included a cruciform plan and this, although likewise remembered by Hirst as 'costly', was a forerunner to the highly adaptable 'AQ Type', which could be built in two-, three- or four-room configurations (Figs 11 and 12). Cultivating variety and the potential for expansion were crucial. Equally, the desire to create a denser urbanity prompted exploration of low-rise flats. Prototypes were initially constructed and finally resolved as 'AE Type' two-storey blocks, each containing four dwellings (Figs 13 and 14).

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Fig. 11. *Tema Community 1, site 12, AQ Type housing, 1958, photograph of 1958 by Michael Hirst*

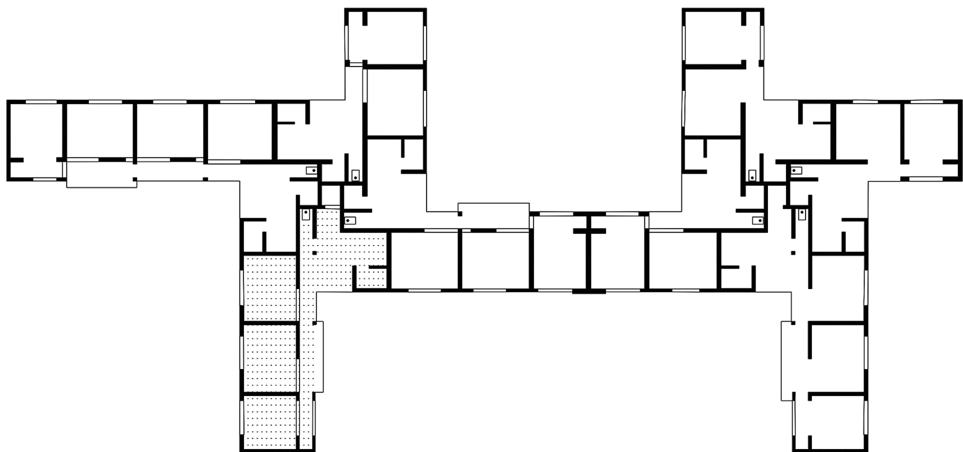

Fig. 12. *Tema Development Corporation, AQ Type, plan, 1958, redrawn by the author*

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Fig. 13. *Tema Community 1, site 16, AE Type flats, 1958, photograph of 1958 by Michael Hirst*

Because rental charges were calculated as a percentage of the construction cost, it was essential to build as cheaply as possible to make the dwelling affordable for the tenants, as well as minimising capital expenditure. Once a type had satisfied the cost test, climatic comfort became the objective. Good design, Hirst argued,

> entails the provision of window openings on both sides of every room, facing the prevailing breeze, whenever possible, which tends to make the buildings rather long and thin. Such buildings also need the least practicable amount of thermal mass, which would otherwise continue to radiate heat instead of accepting heat from the body.[88]

'AP Type' was designed along these lines: two-room houses arranged in ladder formation flanking a spine of kitchen and bathrooms (Figs 15 and 16). The centralised services enabled efficient sanitation provision, as well as ensuring acoustic separation between the units. Semi-private and shaded open spaces were formed by the ladder plan.[89] The individual buildings were arranged in radial plans, creating a sense of village-like informality accentuated by the dramatic roofline. While the aesthetic of these arrangements was not discussed, it was clearly a deliberate composition of white interlocking geometric forms with monopitch roofscapes (Fig. 17).

Once tested, and fully costed, the work was portioned into smaller tenders (with discounted plant and materials incentives) in order to encourage local contractors to bid and thereby develop experience on a major construction site. In this way, Tema

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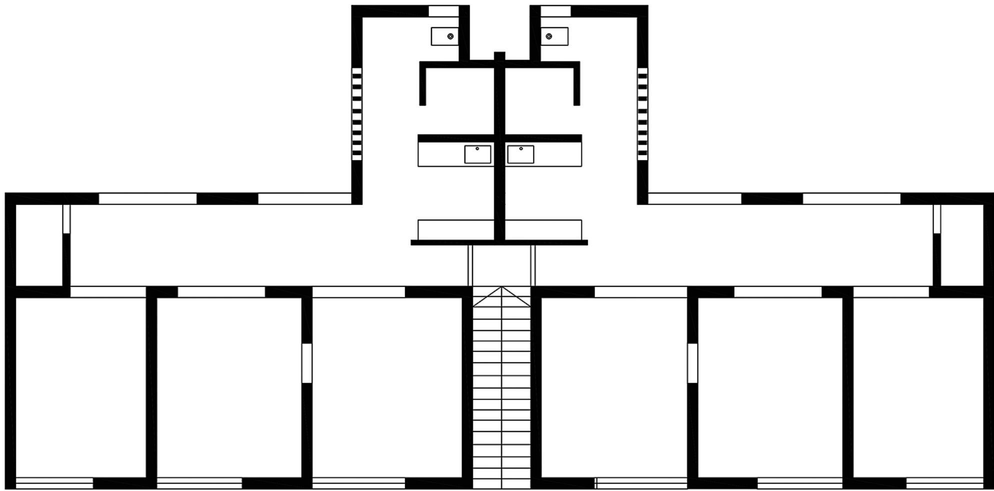

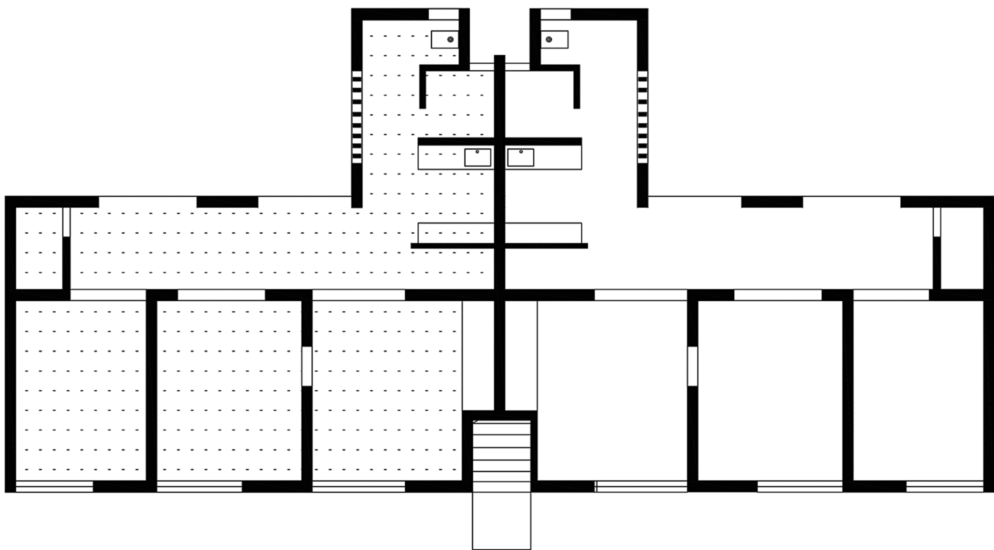

Fig. 14. *Tema Development Corporation, AE Type, plan, 1958, redrawn by the author*

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Fig. 15. *Tema Community 1, site 12, Type AP, 1958, photograph of 1958 by Michael Hirst*

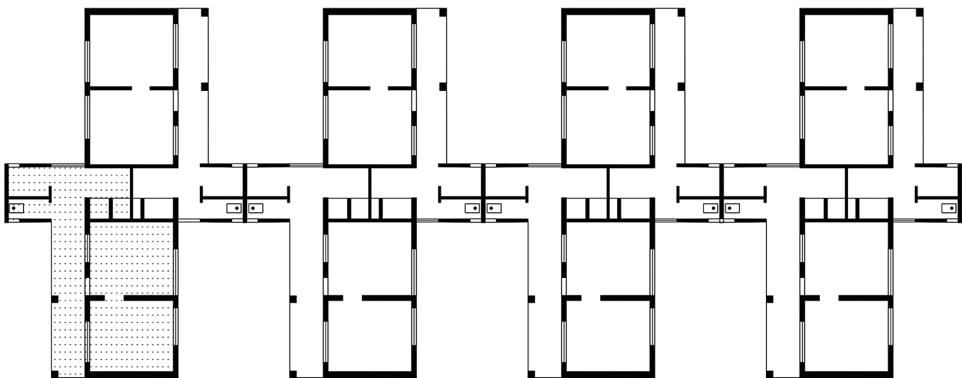

Fig. 16. *Tema Development Corporation, AP Type, plan, 1958, redrawn by the author*

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Fig. 17. *Tema Community 1, site 19, 1958, showing variety and informality in the site layouts, photograph of 1958 by Michael Hirst*

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Fig. 18. *Tema Community 1, stress test on the roof beam of the Outpatients Department, photograph of 1958 by Michael Hirst*

would help develop a local construction industry, serving as a place to learn skills and project management, rather than relying on large overseas construction firms such as Taylor Woodrow.[90]

The process of making Tema allowed for incremental improvement, reflection and repetition. There was considerable learning on site, with the TDC offices becoming a kind of 'live' school. Office space was rented by other consultants who had projects elsewhere in the region, such as Architects Co-Partnership, and thereby gained 'knowledge of methods, materials and prices'.[91] It was an honest reflection of how practice and empirical experience was being developed, with Ghana viewed as a place for testing and learning. Some projects allowed prototypes to be tested on site: for Hirst's outpatients department building in Community 1, the concrete roof trusses were tested to destruction with an unduly high point load (Fig. 18).

Having the salaried architects living on site encouraged this investigative attitude and incremental design method. The government was paying for consultancy and professional solutions, not for an experimental construction school; yet in practice that is how it operated, with little if any reference to previous building types, methods and knowledge. On arrival, one of Hirst's first tasks was to complete the deficient ablution block plumbing, using any combination of Swiss, French and British sanitaryware that he could purchase, each with their own gauges, pipe dimensions and array of fittings.

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They were cobbled together, in a make-do-and-mend system. It was not a highly refined and coordinated design approach, rather a scramble just to get the basics working. Even more drastic — and observed by Nkrumah — the main sewer pipe that the US engineers Kaiser assembled on land and optimistically hoped to float out to sea in one piece got stuck in the sand banks and broke up in the surf. Hirst recorded these mishaps as anecdotes, but they also reveal something of a bumbling and 'can-do' approach that countered the technologically superior image of the international expert. The elegant and resolved projects presented in the press give a different impression. James Scott argued that high modernism has always required an '"other" in order to rhetorically present itself as the antidote to backwardness', but here it was culpable in its imprecise clumsiness and brazen over-confidence. [92]

## BUILDING TEMA

Tema could not be built without a large labour force, and the promise of improved housing and regular employment tempted many labourers to make the move. At Tema, the intention was also to 'stabilise' the workforce and reduce the role of migrant labour, which had long been blamed for social problems consequent on family separation. Under the migrant system, some labourers would travel hundreds of miles on foot in search of work, arriving 'emaciated' from this ordeal, and then endure inadequate but expensive housing.[93] Tema, with its 'family wages, family housing, and the provision of social services to urban centres', would entice workers to become permanent residents, rather than migratory, temporary labourers.[94] As soon as the Group Four houses were habitable, the residents of the 'labour lines' vacated their rooms and moved in, frequently joined by their families. Hirst recalled that, 'as the workforce increased with more arrivals from elsewhere, the learning-curve steepened rapidly, as each newcomer quickly saw from previous arrivals, what to expect and require'. [95] The 'labour lines' and ablution blocks were quickly superseded by far more desirable homes and became redundant.

This also affected the Group Three houses, with residents aspiring to bigger and better accommodation to rival Group Two. According to Hirst, 'the whole of Tema was an unwitting exercise in Social Management, with design responding to aspirational demand, while earnings could be turned into status, especially when such messages reached their folks with undoubted pride back home'.[96] Tema reflected the socio-economic status of society, effectively replicating the colonial model of large villas or modern flats for the upper echelons, while the larger labouring workforce was placed in pseudo-village cottages. This is not to say that these categories were fixed: the basic specifications for each of the four housing groups were in a state of continuous amendment to suit the feedback from the inhabitants and the lessons learned by the architects.[97] Repeating and gradually improving the design, site efficiency, competitive tendering and construction process all enhanced the process of making Tema. Eventually Group Four housing could be 'downgraded to a new Group Five', Hirst predicted, 'pending their demolition and replacement by higher specification standards'.[98] It was an interesting approach that did not offer a single fixed solution but a rolling programme, an iterative process of incremental specification and construction enhancements. It was a planned settlement, but not in the sense of a finished and resolved product. The plan

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Fig. 19. *Tema Community 1, female building labourers at work, photograph of 1958 by Michael Hirst*

and design method allowed for incremental change, while economic and social status was firmly embedded. By encouraging rural or migratory workers to join a regular salaried workforce, Tema generated not only income tax returns and rental income, but also disposable income for spending in markets and shops, as wages were not being sent 'home'. Housing was thus a key factor in the development stimulus: rather than an inconvenient by-product of industrial growth, it was integral to it.[99]

Male migratory labour was also being supplemented by a growing female workforce. 'The African woman', declared the 1955 Inter-African Labour Conference, 'has an essential part to play in the consolidation of family life and in the development and maintenance of social and cultural standards.'[100] Much more than this, the arrival of families rapidly increased the labour supply for construction. As Hirst observed, 'women formed a major part of the workforce, they carried concrete in head-pans from the mixers to the men doing the pouring of footings or slabs, or they carried concrete blocks on their heads to wherever required' (Fig. 19).[101] The rural migrant workers were shaping the settlement, not only by building it (and therefore knowing every aspect of it), but also co-designing it. The women adjusted and modified the houses; they made their own cooking and kitchen arrangements that did not feature in the designs; and they established businesses on the side, often selling produce (Fig. 20). They thereby generated an informal economy that the planned settlement could not produce but which it needed to survive.[102]

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Fig. 20. *Tema Community 1, resident creating new outside kitchen stoves and mortars, photograph of 1958 by Michael Hirst*

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According to Anthony King, it was assumed 'that such planned housing could be used as a means to break down traditional tribal and kinship bonds and help to establish a "law-abiding" and, with the introduction of privately owned, single-family dwellings, an implicitly consumer society'.[103] This was certainly the outcome of Nkrumah's policy. It also suited the international companies, who received new building plots, a housed workforce and a new customer base, all provided under a glossed nationalist agenda. The costs for many, however, were painfully high. At least two large villages, Tema Manhean and Sakumona, were 'relocated' and vast tracts of 'unproductive land' were seized to make way for the new town and industrial area.[104] Further upstream, the damming of the Volta River caused the 'displacement' of 80,000 people, not to mention extensive environmental damage.[105] There were few qualms over these compulsory land seizures and obstinate modernisation drives.

Social structures defined by incomes extended into leisure-time activities for the residents, including sports such as football and cricket and organised community-centre activities. In the designed settlement, there were no places of significance, such as gathering places under tree canopies, fetish shrines, festival sites, and so on. Tema architects were aware of the risk when outside spaces were shared by people of varied and disparate backgrounds. 'This was not to say that people would not get on well with each other', Hirst recalled, 'but they invariably came from tight village communities under their controlling village elders […] It would take time for them to become independent identifiable Tema people with no elders.'[106] The new residents were, in a sense, liberated from certain expectations and traditions, and existing frameworks of authority were accordingly diminished.

As Hirst noted, in the setting of the nascent new town, it was unlikely that the Manches (leaders) of the existing villages would be 'inclined to welcome people who would ultimately take away their old village'.[107] The residents of Tema were part of a new social and urban group, partially severed from any former villages ties and with no allegiance or obligation to the former leaders of the area where they now lived. Instead they lived adjacent to the new factories, plants and docklands built and managed by large multinationals. Nkrumah may have presented, and even imagined, the development of Tema as a nationalist venture for creating an industrialised country, but the industry remained firmly controlled by a small number of global businesses, which were now served by a stable and well-housed labour force.

## CONCLUSION

This article has demonstrated how, in the period from the 1940s to the 1960s, labour, migration and a technocratic-nationalist approach to economic strategy shaped the approach to housing design and production in Ghana. During this relatively short but significant period, a variety of development strategies attempted to reconcile the tension between rural agriculture and urbanised industrialisation. While the wider economy is not the focus here, the built environment, and especially housing, is a useful indicator as to how Ghana was imagined, and to an extent shaped, in its transition from material-extraction colony to industrialised postcolonial producer.

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Through the development visions presented here — design school, building materials laboratory, regulation of self-build, industrial new town — we can trace changing priorities and ambitions. The problem of migratory labour, a necessity but also the cause of urban congestion and requiring regulatory revision, was one of the main drivers of change. The desire to stem the flow of labour to the urban centres by stimulating rural economies and improving rural housing aligned with the colonial-chieftaincy model and reinforced the notion of Ghana as a complementary supplier of raw materials, rather than a manufacturing nation. The approach of the WABRS led by Alcock resulted in some innovative attempts at making housing more affordable, using readily available materials and with fewer maintenance requirements, but it could not address the seasonal demands of agricultural work, urban labour shortages and opportunities for higher wages in the urban centres. It also viewed Africa as a place for 'experimentation' (as well as extraction), where ideas could be tested and potential products developed, while feeding back knowledge and data to the colonial centre.

Nkrumah's political agenda aimed to counter this approach, aligning industrialisation with notions of progress and success. A labour force detached from the traditional seats of power, and 'stabilised' with high-quality accommodation in close proximity to industrial employment, became a symbol of the new nationalist vision. It was also a model that would relieve congestion in nearby Accra, freeing it to become a capital worthy of the newly liberated centre of pan-Africanism. It was an appealing narrative and, for those prepared to 'industrialise' and embrace these changes, it offered improved welfare, increased wages and housing in a carefully designed new town. It offered nationalists a significant role and allowed a rapid modernisation that they believed only the state could achieve.[108] The model was also a major boon to the large global businesses that were in effect given a workforce, new trading facilities and a purpose-built deep-water port, all with a veneer of nationalism. This applied also to the design team for the new town, which was drawn from the colonial power. Tema was able to operate as a design school and place for testing, being receptive to the contributions of the builders and early residents.

The housing structure of Tema reflected and reinforced this new social hierarchy. A clear framework of 'success' and power was demonstrated through housing type and specification. The fishermen of old Tema were not central to this vision of a new Ghana and, with their 'unproductive' land taken from them, they were rehomed in a purpose-built village on the site of Tema Manhean: an expendable portion of the population remote from the modernisation plan that could be erased, assimilated, or contained.[109] Tema offered high living standards and amenities in exchange for labour, but for those unable or unwilling to participate the alternative was to remain in a village 'reserve'.

The scale of the development, accompanied by the massive River Volta project, reduced available labour and materials further. The result was rising building material costs, which in turn drove up construction costs and therefore the rental charges associated with the resultant housing. Increasing wages to compensate for the necessary rental charges was problematic too, because the business model of industrialisation was built on low-wage labour. Arthur Lewis saw the solution as increasing the productivity of agriculture, to release surplus labour for industry. It had to be a two-pronged approach,

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but Nkrumah was adamant in pursuing only the industrialisation strategy, risking economic instability as the price of high-paced development. It was a price Nkrumah was prepared to pay. As he said: 'I am a politician, I must gamble on the future.'[110]

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Iain Jackson is an architect and historian, and professor of architecture at the Liverpool School of Architecture. His books include *The Architecture of Edwin Maxwell Fry and Jane Drew* (Routledge, 2014, with Jessica Holland) and *Herbert Rowse* (Historic England, 2019, with Simon Pepper and Peter Richmond). His research is concerned with late colonial and 'tropical' modern architecture in the global south and West Africa in particular. He is currently working on a Leverhulme Trust-funded project in collaboration with Unilever researching the architecture of the United Africa Company. Email: iain.jackson@liverpool.ac.uk

## NOTES

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51 PRAAD, GH/PRAAD/RG.5/1/254, 'Plans for the Development of Accra', 28 May 1951, p. 5.
52 On the vision for the law courts area, see PRAAD, GH/PRAAD/RG.5/1/254, 'Plans for the Development of Accra', p. 2.
53 See Harcourt Fuller, 'Banal Symbols of the New Nation State', in Harcourt Fuller, *Building the Ghanaian Nation-State: Kwame Nkrumah's Symbolic Nationalism* (New York: Palgrave Macmillan, 2014), pp. 21–38.
54 Janet Berry Hess, 'Imagining Architecture: The Structure of Nationalism in Accra, Ghana', *Africa Today*, 47, no. 2 (Spring 2000), pp. 35–58. On Malaysia, see also *Modernity, Nation, and Urban-Architectural Form*, ed. by Shireen Jahn Kassim, Norwina Mohd Nawawai and Mansor Ibrahim (Basingstoke, Hampshire: Palgrave Macmillan, 2018).
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56 On the offices developed at this time by Barclays DCO [Dominions Commonwealth and Overseas] and the British Bank of West Africa, see S. E. Stockwell, 'Political Strategies of British Business during Decolonization: The Case of the Gold Coast/Ghana, 1945–57', *Journal of Imperial and Commonwealth History*, 23, no. 2 (1995), pp. 277–300 (p. 286).
57 Quoted in Ingham and Mosely, *Sir Arthur Lewis*, p. 160.
58 BOD, MSS.Afr.666 (3), A. E. S. Alcock, 'Initial Proposals for the Development of the New Town of Tema by the Planning Advisor', January 1952. See also, for the design of Tema and the contribution of Doxiadis in the 1960s, Michelle Provoost, 'Exporting New Towns: The Welfare City in Africa', in *Architecture and the Welfare State*, ed. by Mark Swenarton, Tom Avermaete and Dirk van den Heuvel (Abingdon, Oxfordshire: Routledge, 2015), pp. 276–97.
59 Tema Development Corporation, *Industrial Development and Labour, 1950–1956* (Accra: Government Printing Department, 1954).
60 Alfred E. S. Alcock, 'A New Town in the Gold Coast', *Town and Country Planning*, 23, no. 129, pp. 51–55.
61 See BOD, MSS.Afr.666 (3), Alcock, 'Initial Proposals'.
62 For a discussion on 'emptiness', see Libby Porter, *Unlearning the Colonial Cultures of Planning* (Farnham, Hampshire: Ashgate, 2010), p. 57.
63 Kwame Botwe-Asamoah, *Kwame Nkrumah's Politico-Cultural Thought and Politics* (London: Routledge, 2005).
64 Geoffrey Bing, *Reap the Whirlwind: An Account of Kwame Nkrumah's Ghana from 1950 to 1966* (London: MacGibbon & Kee, 1968), p. 105.
65 Bing, *Reap the Whirlwind*, pp. 87–88.
66 See <ghultimatenews.wordpress.com/2019/10/03/sir-nana-tsibu-darku-ix-service-to-assin-atandansu-traditional-area> [accessed 20 April 2022].

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67 BOD, MSS.Afr.666 (3), Alcock, 'Initial Proposals', p. 3.
68 BOD, MSS.Afr.5.666 (13), A. E. S. Alcock, lecture notes, 28 February 1952, p. 5. Alcock was also trying to reduce both the high cost of making up an extensive road network and the number of road traffic accidents.
69 Alcock, lecture notes, p. 6. For Reilly's 'village greens', see Iain Jackson, Simon Pepper and Peter Richmond, *Herbert Rowse* (Swindon, Wiltshire: Historic England, 2019), pp. 100–01.
70 W. A. Lewis, *Report on Industrialisation and the Gold Coast* (Accra: Government Printing Department, 1953), p. 19. On the work housing, see Jackson *et al*., 'The Volta River Project'.
71 Tema Development Corporation, *Report for the Year ending 31st March 1954* (Accra: Government Printing Press, 1954), p. 2.
72 Tema Development Corporation, *Report for the Year ending 31st March 1954*, p. 3.
73 Similar houses were built at Takoradi after the second world war without verandahs or lockers for storage, with rooms just 12 × 10 ft. See PRAAD, GH/PRAAD/GH.5/1/256, 'African Township, Takoradi', 1944.
74 Richard Harris and Susan Parnell, 'The Turning Point in Urban Policy for British Colonial Africa, 1939–1945', in *Colonial Architecture and Urbanism in Africa*, ed. by Fassil Demissie (London: Routledge, 2010), pp. 127–51. See also d'Auria, 'In the Laboratory and in the Field'.
75 London, Michael Hirst Archive [hereafter MHA], 'Africa 06: Housing the Workforce', 2009.
76 From the early 1950s, the use of overseas consultants was discouraged: see PRAAD, RG5.1.184, 'Employment of Consultants', circular letter, 25 November 1954. On the new alliances formed in the post-independence period, see Łukasz Stanek, *Architecture in Global Socialism: Eastern Europe, West Africa, and the Middle East in the Cold War* (Princeton, NJ: Princeton University Press, 2020) and on Africanisation see Stephanie Decker, 'Africanization in British Multinationals in Ghana and Nigeria, 1945–1970', *Business History Review*, 92, no. 4 (Winter 2018), pp. 691–718.
77 Email from Michael Hirst to the author, 30 January 2020. While Clerk was the first professionally qualified Ghanaian architect, other Ghanaians had previously studied in the UK, including John Dawe Tetlow, who graduated in 1938 from Liverpool University and worked with Fry and Drew on various West African projects.
78 Patrick Zamarian, *The Architectural Association in the Postwar Years* (London: Lund Humphries, 2020), pp. 85–92.
79 MHA, Michael Hirst, 'Memoirs, Africa 08: Mary Work', 2009. Hirst recalled receiving other employment offers for the Windward Islands as well as an interview with Minnette de Silva for projects in Sri Lanka. Although Maxwell Fry was the first director of the DTA, most of the course was prepared by others: see University of Liverpool, Special Collections and Archives, D147/LA27, William Holford Lectures.
80 Letter from Michael Hirst to the author, 11 November 2019. See also Denis C. Robinson, 'Development of the New Town of Tema, Ghana', *Architectural Design*, 29 (April 1959), pp. 138–40 (p. 139).
81 Email from Michael Hirst to the author, 30 January 2020. See also Denis C. Robinson 'Otto Koenigsberger Obituary', *Architectural Association Quarterly*, 13, no. 1 (October 1981), p. 119. Robinson would go on to work in Gambia, Iraq, Kenya, Sudan, Sri Lanka and Cayman. Little is known about David Gillies-Reyburn, but he did continue to practise in West Africa into the 1960s.
82 MHA, Michael Hirst, 'Africa 03: Tema', 2009.
83 Anthony D. King, *Urbanism, Colonialism, and the World-Economy* (Abingdon, Oxfordshire: Routledge, 1990), p. 41.
84 BOD, MSS.Afr.5.666 (4), A. E. S. Alcock, 'An Appreciation of the Problems Involved in the Planning and Development of the New Town of Tema, December 1952'. See also discussion in d'Auria, 'In the Laboratory and in the Field', p. 335.
85 These records are part of Michael Hirst's personal archive.
86 Charles E. Lindbolm, 'The Science of Muddling Through', *Public Administration Review*, 19, no. 2 (Spring 1959), pp. 79–88.
87 Letter from Michael Hirst to the author, 11 November 2019. For more recent photographs, see J. M. Richards, *New Buildings in the Commonwealth* (London: Architectural Press, 1961) and <transnationalarchitecturegroup.wordpress.com/2019/02/08/housing-in-accra-junior-staff-quarters-from-1961> [accessed 1 July 2022].
88 MHA, Michael Hirst, 'Africa 16: Design for Comfort', 2009.
89 The first prototype housing was built by the Italian contractor Micheletti and Danish contractor Brun, who were operating in Ghana.
90 UAC/2/20/BN, 'Taylor Woodrow Ghana'.
91 Denis C. Robinson, 'Towards a Tropical Architecture', *Architectural Design*, 28 (April 1959), pp. 128–37. ACP also employed Hirst in the evenings to complete drawings for their Ajena project.

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92 James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven and London: Yale University Press, 1999), p. 332.
93 Brown, *Labour Conditions in West Africa*, p. 91.
94 Frederick Cooper, *Decolonization and African Society: The Labor Question in French and British Africa* (Cambridge: Cambridge University Press, 1996), p. 365.
95 MHA, Michael Hirst, 'Africa 06: Housing the Workforce', 2009.
96 MHA, Michael Hirst, 'Africa 06: Housing the Workforce', 2009.
97 See Denis C. Robinson, 'Planning in the Commonwealth: Tema, the New Port of Ghana', *Journal of the Town Planning Institute*, 45, no. 4 (1959), pp. 90–93.
98 MHA, Michael Hirst, 'Africa 06: Housing the Workforce', 2009.
99 Godwin Arku, 'The Economics of Housing Programmes in Ghana, 1929–66', *Planning Perspectives*, 24, no. 3 (July 2009), pp. 281–300.
100 The 1955 Inter-African Labour Conference, quoted in Cooper, *Decolonization and African Society*, p. 366.
101 MHA, Michael Hirst, 'Africa 06: Housing the Workforce', 2009.
102 Scott, *Seeing Like a State*, p. 310.
103 King, *Urbanism*, pp. 58–59.
104 At Sakumona the villagers were expected to participate in self-build to reconstruct their own homes after the forced relocation. See *Colonial Administrative Reports for the Gold Coast 1951*, p. 59.
105 Jackson *et al.*, 'The Volta River Project', pp. 512–48.
106 Letter from Michael Hirst to the author, September 2020.
107 Letter from Michael Hirst to the author, September 2020.
108 Ruth Rempel, 'Colonialism and Development in Africa', in *The Palgrave Handbook of African Colonial and Postcolonial History*, ed. by Martin S. Shanguhyia and Toyin Falola (New York: Palgrave Macmillan, 2018), p. 590.
109 A similar process is taking place today, with industrialised fishing and processing replacing the canoe and market system.
110 Princeton, NJ, Princeton University Library, W. Arthur Lewis Papers, Box 10/2, letter from Nkrumah to Lewis, 19 December 1958.

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