THE MAUNSELL ARMY SEA FORTS: ISLANDS OF LIGHT AND STEEL

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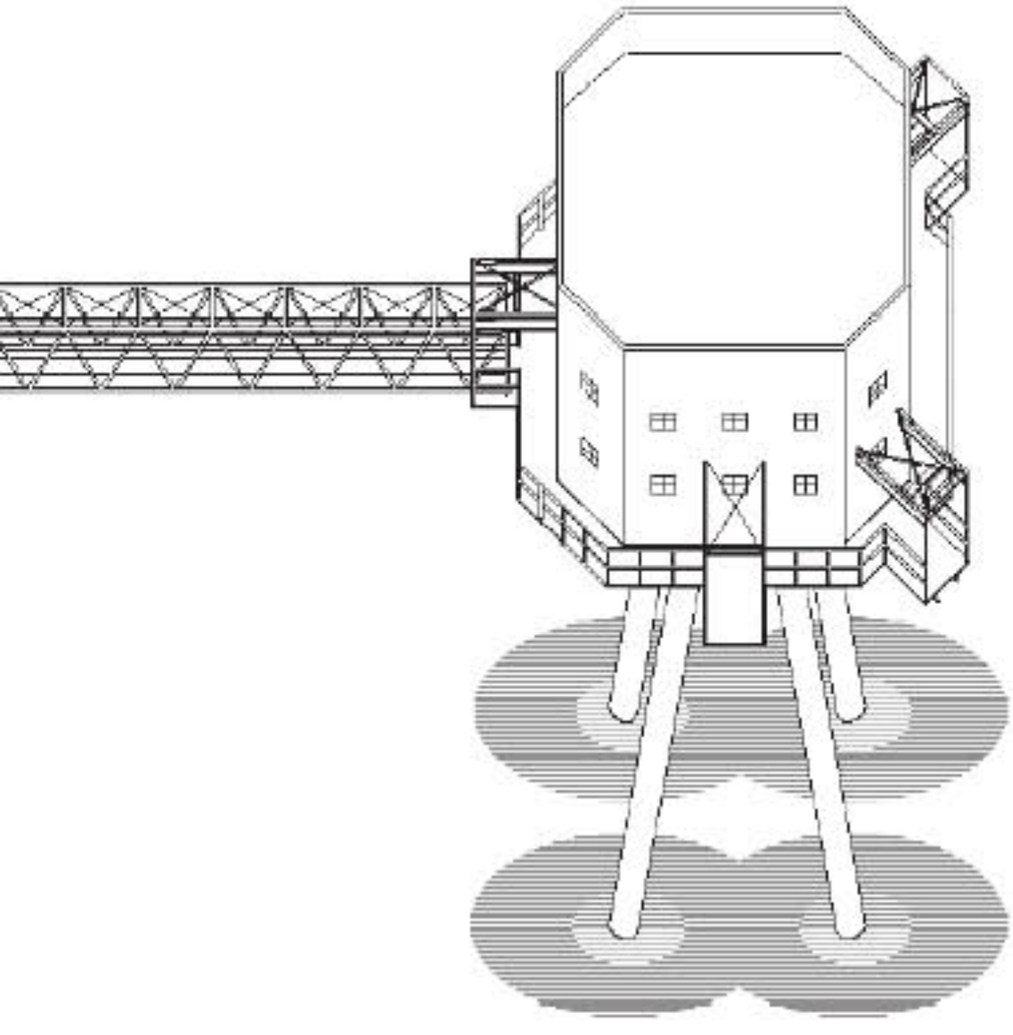

Soldier with binoculars: Enemy aircraft approaching!
Officer in charge: Pose! Pose! . . . And target it. Target it out! Go to southwest. Expose!
Soldier: Expose!
Officer: . . . and target it! Hold it! Go to the right a bit.
Soldier with binoculars: He's waiving!
Officer: Don't loose him.
Soldier: What are the gunners doing? What are they hitting?
Soldier with binoculars: He is on fire!
Operator: He is diving! He is coming down!
Official: Go to the gun!
Operator: Look up! He's coming straight at us!

Excerpt from *Light Up the Sky!*, directed by Lewis Gilbert, United Kingdom, 1961

This excerpt of dialogue comes from a comedy-drama made in 1961 that satirizes the manners of a World War II British Army Searchlight Squad. The operator, played by Benny Hill, shines a searchlight through the dark to expose German retaliatory raids approaching England. After he is hit, however, the enemy appropriates the searchlight, reversing the roles of target and hunter and placing the British unit in danger.

Night-time attacks were one of the most important tasks for airships conducting "strategic bombing" during World War II. This strategy usually involved carrying out sustained attacks over a lengthy period on targets deemed vital to the enemy's capacity to wage war, and thus bypassed the enemy's frontline defences and helped to defeat him by destroying the civilians' will to fight. In the visible battle between power and resistance, fear and security, and the benefits and restrictions of war being waged in the sky, the darkness of night was the symbolic shroud that permitted attempts to control both land and sea; both sides knew that under the cover of darkness it was possible to master the skies unseen.

Being highly vulnerable to ground fire as moving points in the sky, reconnaissance aircraft (designed to find targets) and bomber planes (designed to bomb targets) were sitting ducks during the day, but could be far stealthier at night. The introduction of night-time attacks reduced the number of accidents and casualties among pilots, fighters, and anti-aircraft gunners while increasing a sense of protection and intensifying the attacker's power over the enemy by adding

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a psychological element to war through the need to defend oneself against a threat that was difficult to detect.

With the outbreak of World War II, the implementation of systematic night bombings generated powerful new ways of gaining a military advantage or mounting a defence. The night thus became witness to the deployment of sophisticated decoys and innovative applied technologies (used in both research and the development of new weapons). In keeping with the wartime code of secrecy, the conquest of the night spurred the development, coordination and combination of instruments such as airborne and ground-control radar, night navigation, aircraft recognition, control rooms, fake airfields, dummy production plants, intelligent fortresses and incendiary rounds among stronger light sources, better lenses and reflectors, *yehudi* lights and other equipment, thereby changing the nature of warfare.

As the conflict evolved, the Germans built larger and faster airships for the Führer's fleet and the British sought to save the Queen by building better defence systems in the form of secret military structures with powerful searchlights and radar, three of which were the Thames Estuary Army Sea Forts.

Constructed in 1943 from 20 May to 13 December, Her Majesty's (H. M.) Fort Nore (U5), H. M. Fort Red Sands (U6) and the H. M. Fort Shivering Sands (U7) employed, strategically, a generic but pure technical design, all sharing the same complex, "unorthodox engineering solution" (Paul Hirst, *Space and Power: Politics, War and Architecture* [Malden: Polity Press, 2005], p. 213). Since they were scattered, they constituted a more challenging target for enemy planes.

The Army Sea Forts were located outside the three-mile limit of British waters and served as both checkpoint and barrier, two functions that were vital to limiting the range of German attacks and to increasing British territorial control. Approached only by boat, the Forts provided anti-aircraft defence against enemy bombers by protecting the airfields on the nearby mainland and the shipping channel, and prevented the loss of ships headed towards Liverpool or the capital (mainly American supplies) to mines set in the seabed.

Guy Anson Maunsell (1884–1961) was the civil engineer commissioned to design the structures. Maunsell had worked on massive civil engineering projects during the interwar years, and when the hostilities of World War II broke out, he was in charge of overseeing many secret projects for the Ministry of Defence. These included the successful construction and deployment of the Thames Estuary Naval Sea Forts and the Army Sea Forts of the Mersey Estuary, efforts that acknowledged the failure of both the Blitz and the Battle of Britain.

For the Army and the Thames Estuary, Maunsell elected to solve the problem of the need for speedy construction as well as that of the estuary's tides and shallowness by designing modular towers consisting of a two-storey steel pod supported on four slim, reinforced concrete legs attached to a self-burying base. Easy to transport, the towers were manufactured on the south bank of the Thames at Red Lion Wharf and then towed into position and grounded onto the sand-and-shingle seabed. Maunsell was adept at devising schemes that were uncomplicated to build and to position, as well as practical, functional and affordable to operate.

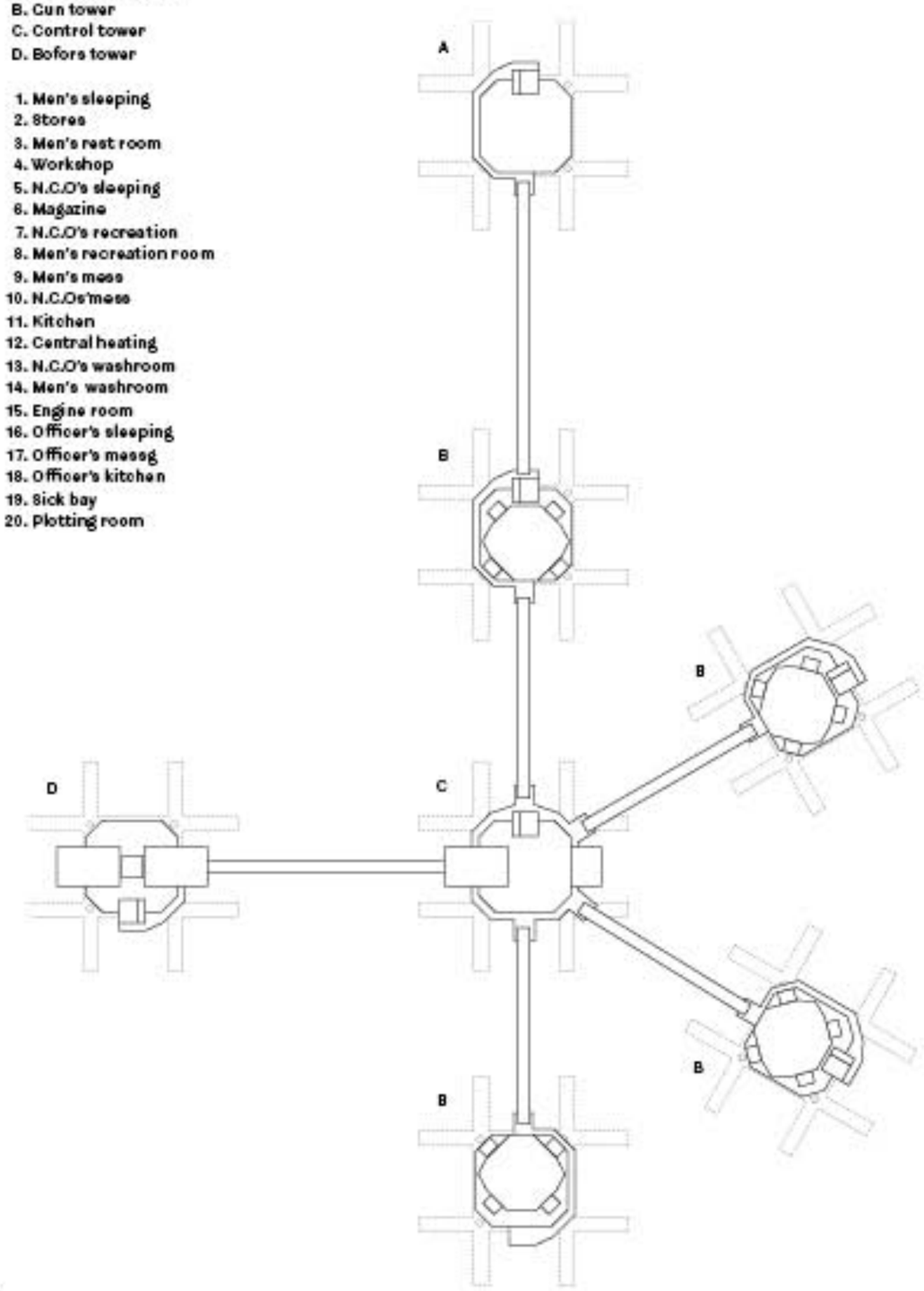
The Army's intentions involved the construction of forty-nine modular towers to be linked by underwater telephone lines and but only three forts, each comprised of seven towers, were deployed. Based on the polygonal layout of land fortifications – aimed not at minimizing blind spots, but at providing the possibility of multi-sided, or "revolving," fire – each of the forts consisted of seven separate modular towers positioned in clusters: a central radar/control tower was surrounded by four 3.7-inch heavy anti-aircraft gun towers, one 40-millimetre Bofors light anti-aircraft gun tower, and a searchlight tower at the rear, which was located beyond the pentagonal tower arrangement to the north.

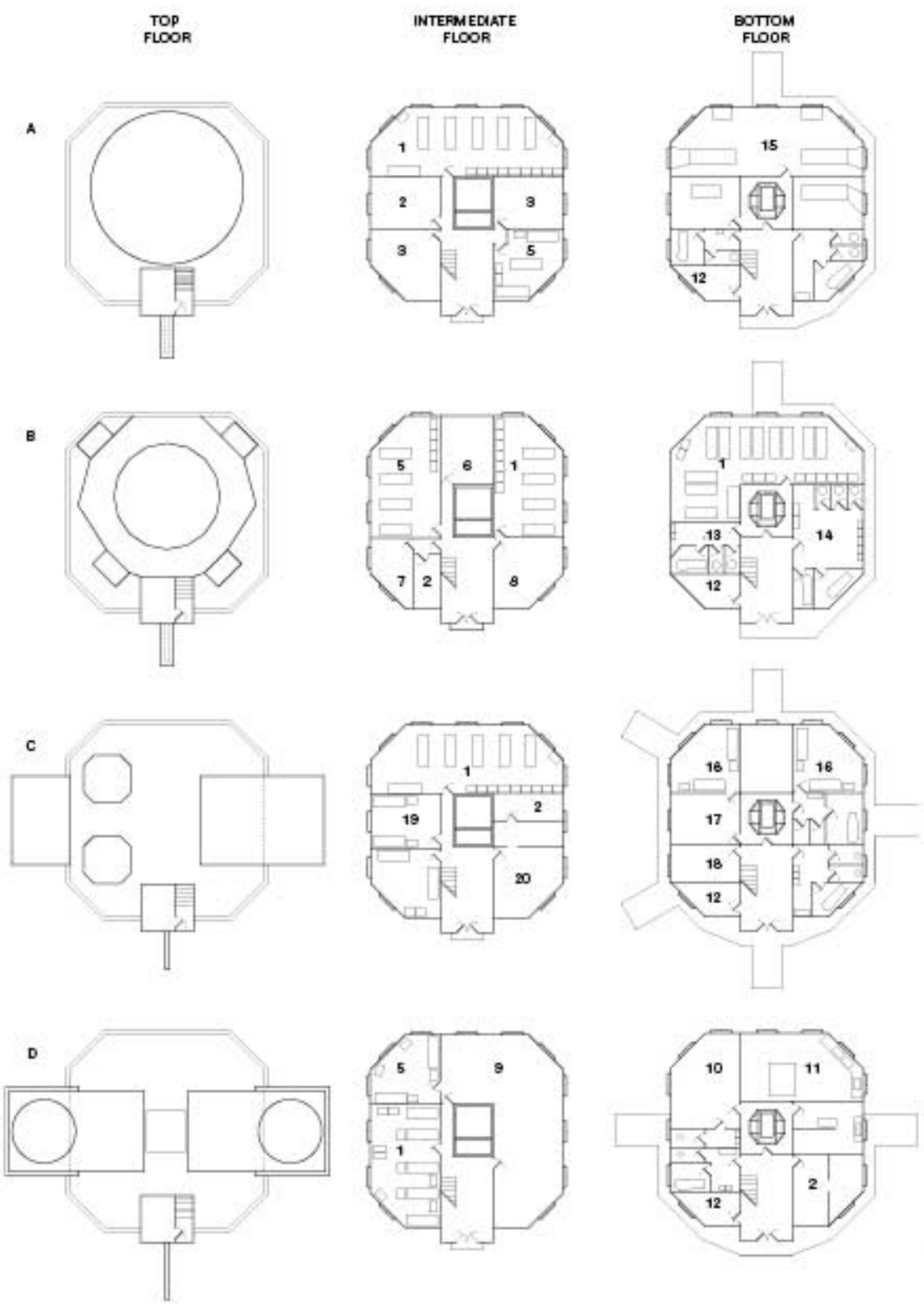
Each of the modular towers was self-sufficient, having its own living and sleeping areas inside the octagonal steel pods with armoured parapets surrounding the armour-plated top deck and magazine chambers. The outer towers were connected to the central tower via tubular steel walkways that helped move – and, if necessary, evacuate – the crew of between 165 and 265 men. Referred to as "soldiers on steel", the full complement crew of each fort included mechanics, fitters, armourers, controllers, anti-aircraft gunners, radio interceptors, ground observers, switchboard operators and searchlight operators that served tours of four weeks aboard, all of whom used the latest and most advanced weaponry of the day.

For the conceptual structure and logical organization of the Maunsell Army Sea Forts, the rear searchlight position, with its 360-degree visibility and its distance from the sound and radar locator, was of crucial importance to the success of the other towers. It served not only to detect, locate and illuminate enemy aircraft after nightfall, thereby enabling the defenders to fire upon their attackers even in the dark, but also to give overhead camouflage to the defensive fort by means of deceptive arrangements. The rear position assured that whenever the enemy planes tried to bomb the Sea Forts, the bombs would overshoot their mark and fall in the waters beyond it. As an apparatus designed to project a powerful beam of light comprised of nearly parallel rays, the searchlight

A. Search light tower
B. Gun tower
C. Control tower
D. Bofors tower

1. Men's sleeping
2. Stores
3. Men's rest room
4. Workshop
5. N.C.O's sleeping
6. Magazine
7. N.C.O's recreation
8. Men's recreation room
9. Men's mess
10. N.C.Os'mess
11. Kitchen
12. Central heating
13. N.C.O's washroom
14. Men's washroom
15. Engine room
16. Officer's sleeping
17. Officer's messg
18. Officer's kitchen
19. Sick bay
20. Plotting room





objectified the signal of the stronghold and singled out distinct bodies in the vast expanse of the night-time sky.

At that time, the radar, the spotlight and the machine guns were synchronized with one another, so the radar told the light where to shine, and then the guns followed the light in order to open fire on the exposed target. At night, when the horizon disappears and the sky becomes one with land and sea, all that would be visible from the targets would be the cone of illuminated atmospheric particles caught in the searchlight's beam. These beams would simultaneously isolate and connect the adversaries (the Allies and the Axis), thereby opening corridors of light that provided each with a momentary advantage.

Watching the landscape of darkness during World War II, the movement between the sky and the ground was cast in lines or corridors of calculated precision, with beams that shot upwards, creating dazzling "islands of light" that scanned the night sky. Used tactically, the light emitted by the searchlight should be understood as power opposed to darkness – in its intrusiveness, the light exposes, makes visible. In its disempowering exposure of the invisible and its empowering provision of visibility, the searchlight is in fact an example of an optical instrument that, to borrow Paul Virilio's words, "pierced more than the darkness . . . [i]t [also] illuminated a future where observation and destruction would develop at the same pace" (*War and Cinema: The Logistics of Perception* [London: Verso, 1989], p. 68).

Photography by Alessandro Sambini.