

EARLY DAYS IN THE SUDAN

BY

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With the fall of Omdurman and the final conquest of the Sudan by Lord Kitchener in 1898, after years of misrule and bloodshed under the Mahdi and Khalifa, the reorganization of the country was inevitable. (See Slatin Pasha's *Fire and Sword in the Sudan*).

Kitchener's line of communication and supply was a long one ; a hastily built railway of metre gauge, laid down on the sand, being the only practicable connection with Egypt, steamer transport between Haifa and Assouan, and a railway, with change of gauge at Luxor, to Cairo and Alexandria. For part of the year, steamers could pass the sixth cataract at Shabluka and reach as far north as Berber.

The advance on Omdurman was timed when the railway had reached Atbara and the river thence open to Omdurman. Kitchener's main anxiety must have been these lines of supply and communications and in the evening after the battle most of the steamers turned north, carrying with them all personnel not essential for his future requirements, leaving behind only those officers required immediately. One of those retained was Engineer Commander Bond of the Royal Navy, later El Lewa Bond Pasha, C.M.G., D.S.O., who had superintended the erection of the gunboats at Atbara, and held the position that

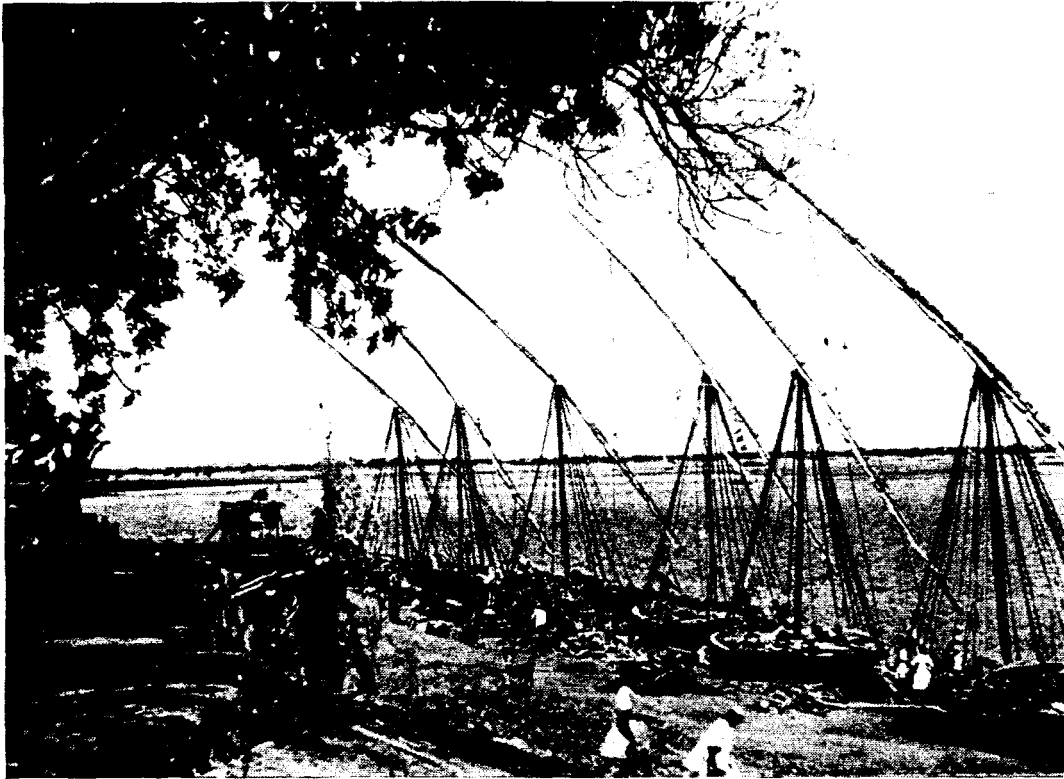


THE NILE IN FLOOD

would now be known as 'Squadron Engineer Officer' to Beatty, who was in command of the gunboats. He also kept Lieutenants Cowan (to become famous in both world wars) and Staveley, to command the gunboats needed for cleaning up of the country to the south and for the ultimate defeat of the Khalifa, who was still in the field with an army.

There was a rudimentary dockyard on the river bank at Omdurman, with some old equipment, broken down steamers, native sailing boats, and the parts of one steamer, under construction when Gordon was killed. Unfortunately, and to Kitchener's indignation, gunfire from the boats—after the battle was over—did a great deal of damage to these remnants. Kitchener told Bond to take charge of the dockyard and everything afloat and get on with it. This he did with great success, making use of everything repairable and of the few semi-mechanics who had survived, together with seagoing personnel who had come up with the expedition. These consisted of some seagoing engineers of various nationalities, two E.R.As and two marine sergeants—one of whom became the storekeeper, the other the clerk, while a boilermaker E.R.A. became the Chief Constructor, and so remained until his retirement.

Early in the century it was decided to move the yard from Omdurman to a better site at Khartoum North, on the Blue Nile opposite the Palace, and funds were forthcoming to equip it in a small way. The new site provided a reasonable frontage, accessible in all states of the river. Buildings erected contained the usual workshops—foundry, fitting and joiners shops, smithery, and a roofed area for the shipwrights, with necessary offices, and it eventually gave employment to about 400 men. Power came from a large agricultural engine driving a dynamo. A village was run up for the employees, but for some years no funds were available to fence the yard in, and petty theft was endemic. One robber was caught going into his house with a crucible, in which his confederates dropped the small articles of brass they had secreted. An important pair of small brasses, missing from a boat about to sail, led to the discovery and persuaded the authorities to find funds for a fence. As time passed, the old agricultural engine was replaced by two 50 h.p. suction gas plants driving gas



NUGGARS

engines and a 50 h.p. storage battery, which were replaced when juice became available from the Khartoum power station.

Khartoum fell in 1898, and by 1904 the move to Khartoum North was complete, and a growing organization taking shape. It was at this stage that the writer was borrowed from the Royal Navy, to be an assistant to Commander Bond, and, having met his Chief while he was on leave in London, found himself on arrival at Khartoum with the rank and uniform of Bimbashi (Major) in the Egyptian Army, in entire charge.

However, by that time the European staff was fairly settled, ex-merchant navy engineers providing the works manager, foreman boilermaker and joiner, and about twenty-five engineers in practical charge of individual steamers. The native reis (captain), with his knowledge of the river and its various sand banks, was naturally the authority on navigation, but the engineer was finally responsible for the successful running of the vessel, its passengers and cargo. Government steamers were then the only means of water transport, apart from native sailing boats, and passengers were mainly officials, though once a year a tourist trip was run to Gondokoro and back (about 1,000 miles south). Later, a private company put some steamers on the river, but failing to make good after some years, the steamers, floating dock, workshops and some personnel were taken over, their yard being a few miles further up the river. They were very valuable additions to the government fleet, but unfortunately the steamers had jet condensers which gave endless trouble from the silt in the Nile water during the flood, which those of the government, with surface condensers, escaped.

Part of this yard was devoted to the repair and building of the two types of native sailing boats, nuggars and gyasses which were needed as barges, until funds were available to purchase steel vessels. They were required to supplement transport, the demands on which were expanding beyond the capacity of the available steamers. As soon as the north wind began to blow, in the late autumn, a fleet of them left Khartoum for various ports of call in the thousand mile run

south to the limit of navigation on the White Nile, then Gondokokoro but later Juba, returning north mainly drifting with the stream.

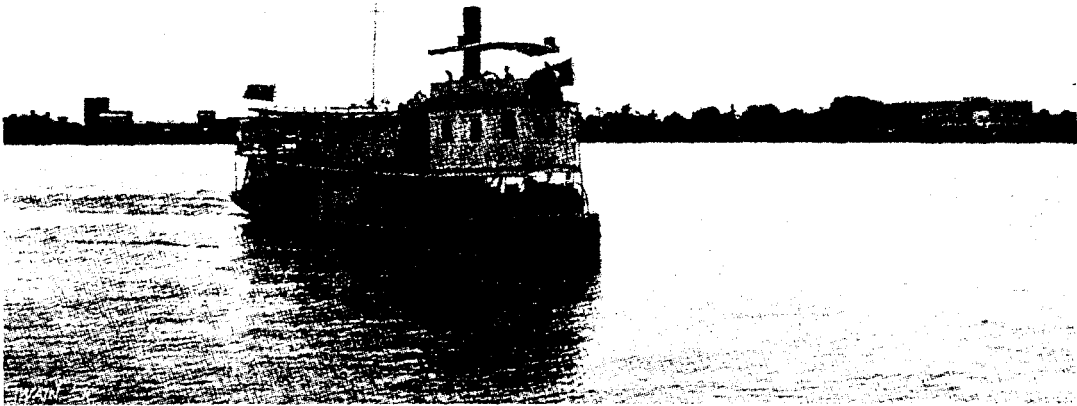
Of these two types of vessels the nuggars are of particular interest for, except for some differences of material, they are identical with those which figure in Ancient Egyptian monuments. Saucer-shaped in build, without ribs, and of roughly squared sections of wood rabbetted and joined with long nails, they can take knocks on the many sand banks without sustaining permanent damage. Their watertightness depends upon caulking with old rags. The wooden pegs and palm leaf ropes of the past have been replaced by iron nails and hempen ropes. The 'gyassas',—the same word as 'dhaisa'—is two masted and the 'nuggar' has one mast with sails towering high to catch the slightest breeze from the banks of the river.

The six-inch nails gave an enterprising district officer, up country, an idea. One of his tribes were spear-makers for their neighbours, having local iron ore and traditional methods of working it. He suggested that these nails should be bought from him to start a peaceful trade. To his disappointment he found that one nail took many weeks to produce, and his enterprise failed, but it is an example of the fatherly interest of the average British administrator. A similar example was that of one who persuaded a local sheikh to substitute iron buckets and chains for the earthen pots and palm ropes of his sakkias, the water-lifting appliances usually manned by oxen and a small boy. They have to be lengthened or shortened as the river height varies, and there is inevitably some wear and tear. The only competent mechanic within reach was usually a Greek who was able, at a critical moment, to hold up, and over charge for, repairs—while the crops starved for water. One day, a disappointed sheikh arrived at the yard with a boat load of discarded sakkia parts, which, though of no value even as scrap, we were allowed to buy from him.

Until about 1907, the steam fleet was a varied collection. First, were the three screw gunboats, erected under the direction of Commander Bond at Atbara for the expedition. They were, on Admiralty advice, of the Yangtse model with tunnel screws or flaps, one of them being supplied by Yarrow and the other two by Thornycroft. Then came three large stern-wheel gunboats, also built for the purpose and a number of smaller, but generally similar vessels, and those survivors of Sir Samuel Baker's side-paddlers, dating from the sixties, with box boilers and safety valves loaded to $3\frac{1}{2}$ lb/sq in. It was, incidentally, one of these boilers—that of the *Safia*, commanded by Lord Charles Beresford—which was repaired under fire and earned for the Chief Engineer, Benbow, the title of 'The man who mended the boiler.' The actual plate, about fourteen inches square, used to be kept in our office.

At Omdurman, the partly finished side-paddler *Tahra* was discovered and she was completed under Commander Bond and was brought into service for the Governor of Berber until replaced by a new vessel in 1910. The word 'tahra' means 'undefiled' and she was so called because no infidel had worked on her! The writer brought her through the sixth cataract at Shabluka on her last voyage to Khartoum, when a pressure of three pounds was maintained with difficulty, while breasting the strong current of the Nile, then in flood.

As the country settled down, most of the stern-wheelers had their guns removed and were adapted as transports, towing two or more barges, gyassas or hulks alongside. Others were used as Governor's vessels in various provinces of the country. The three screw-gunboats were not altered and were stationed at strategic points—Khartoum, Roseires, and Mongalla—to show the flag. They were a great disappointment to Lord Kitchener, when about to move south from Atbara, on completion. He had barges full of troops lashed alongside but, on casting off, they immediately began to drift down stream, their



SUDAN GOVERNMENT STEAMER

fast-running propellers quite unable to get a grip on the water in the way the 30 r.p.m. paddle wheels could.

Dockyard personnel, like the inhabitants of Omdurman, were a very mixed lot, some having a traditional craftsmanship, but the majority, very unskilled labourers. The sailors and the reis were all berberines, good, reliable and loyal ; carpenters were usually Egyptian copts, using a bow for drilling or turning, and holding the job with their feet. They used a short-handled version of the adze, known as a fass, for all other purposes. Black Sudanese became good firemen, and half-bred Egyptian-Sudanese made good leading hands.

The only lifting appliance available was a home-made sheer-legs which could handle up to five tons with some risk. Once, when we had to get a heavy boiler into a ferry-steamer then building, the Chief, after seeing all preparations in order, said to me—‘ Now we must go away and leave them to it—if we stand by something will go wrong ’. His faith was justified, then and on other occasions. With numbers they could do incredible things—(the tradition of the pyramids ?). When a steamer ran aground, half a dozen sailors would jump into the water and, putting their backs under the bows, with or without the engine’s assistance would get her off. One very old fellow had been one of the crew of the *Bordein*, which was lying alongside the palace with steam up ready to evacuate Gordon if he so decided. The Khalifa’s hordes began a general slaughter, but, when the word was passed that craftsmen were to be spared, this old half-Egyptian claimed to be an engineer and was spared, to keep up the bluff until the fall of Omdurman. In his old age he had a vice in the workshop at which he endlessly ran down nuts and bolts, but his productivity was not worth the wage we charitably gave him.

The floating dock was very useful but a great anxiety. A small boiler and pumps were fixed on top of one of the side walls and the dock itself was secured alongside, parallel to the stream. It could only be used when the water was sufficiently deep, which was of course when the current was fairly strong, and at a critical point when lowered, the water was nearly up to the furnace. A slight error in pumping, and the full force of the current pressing on the floor of the dock, more than once forced it under, there to remain until the next rise of the Nile.

Transport improved with the opening of the Port Sudan Railway in 1906, but until then there was a great shortage of materials of all kinds. On the other hand there was a mass of scrap, including a number of beautifully finished

brass cannon from the ill-fated Hicks expedition, of which two only were spared to give dignity to our offices. My Chief and I would often spend our leisure, between knock-off and sunset wandering round the scrap for useful finds. There were several old, small, agricultural engines, and one of our masterpieces was converting the steel boat, which Marchand had carried half across Africa to Fashoda, into a shallow-draft (12 ins) stern-wheeler. The cylinder was made from two of these engines, joined lengthwise, driving a stern wheel. Though primitive it did good work up the Sobat river as far as the Abyssinian frontier at seasons otherwise unnavigable.

Until coal was directly imported from Port Sudan, Khartoum and neighbourhood were entirely dependent on wood fuel, brought from stations 200 miles to the south. A weekly trip was made by one of the old side-paddle steamers towing a miscellaneous collection of hulks. Such was the fuel consumption on the trip, that the amount delivered was only one half that embarked—a condition that positively hurt, until it could be remedied by more modern steamers and steel barges.

Wood was the main fuel, except for a little precious coal for emergencies. This was in the form of hard Welsh briquettes running 90 to the ton, and was easily checked by illiterate engineers, and subject to little wastage. But the wood fuel supply was becoming critical, as all the best timber near the bank was getting burnt out. Our duties included manning a number of wood stations with recruits from the miscellaneous floating population of Omdurman, many of whom were ex-slaves whose origin or tribe was unknown. They cut the wood, stacked and loaded it when steamers called, and were paid by results, in excess of a minimum wage, returning to Omdurman after a period of months to 'blow' their accumulated earnings. Search for new wood supplies gave the writer his one chance, while, in the Sudan, of big game shooting and the bag included an elephant, a buffalo, a rare type of antelope, other antelope, while hippo were shot from time to time as food for the hands.

Later the use of wood had to be given up, and the tendency nowadays is to use oil and geared Diesels. Stern-wheels, however, remain the best form of propulsion for most of the river system and the theoretical economy of feathered paddles is avoided, as the mechanism gets continually fouled with drifting vegetation.

Originally the hulls of most vessels were of one-eighth inch plate, but when rebuilt three-sixteenth was usually adopted. Though little difficulty was experienced with corrosion, the frequent groundings of craft on the sandbanks and other hazards of a winding, shallow river made periodic hull repairs and even rebuilding necessary. Holes in the hull were usually temporarily repaired with cement boxes (sanadik) until the number of these made rebuilding necessary. The vessel would then be beached on the banks of the falling Nile and the engines removed to the shops. Work in the hull would be carried out so that the vessel could be repaired and ready to take the water again by the next seasonal flood.

About 1906, the Egyptian Irrigation Department decided to investigate the possibility of opening up the choked channels of the White Nile from Kodok (Fashoda), through the 300 miles of sudd (floating plants and reeds) to the south, in which it loses half the water it receives from the great lakes. This investigation is at last bearing fruit, with the new dam at Jinja in Uganda—the beginning of a vast programme. For this work they ordered three self-propelled stern-wheel dredgers, a grab, a suction dredger, and a dipper; a stern-wheel steamer and barges of Mississippi type they obtained from the U.S.A. They were erected by the Sudan Steamers Department. Experience with this American type vessel led to a revision of transport method, and steamers and



CUT SUDD

barges are now built square-ended so that, when secured with wires and stretching-screws, they form a rigid raft with the propulsion unit pushing the raft.

Steamers and barges were gradually converted, and it was found that on a routine trip one of them could handle six, instead of four barges at the same speed and for the same fuel consumption. Apart from the 'squaring' the only important change was an increase in rudder area, with a restriction on the amount of helm possible, for the native reises loved nothing more than to put the helm over 90 degrees if possible, taking all the way off the vessel. An article in *The Times* a little while ago, called *Mississippi's Heyday* records that stern-wheelers of up to 5,000 h.p. with a stern-wheel 40ft in diameter would push a raft of 56 barges carrying 67,000 tons of coal. Nothing like this was ever possible on the Nile, for the Mississippi principal load was downstream while ours was against the stream.

As evidence of the isolated and local development of the inland water transport, we found that, in some respects, there had been little change from the days of Mark Twain and *Huckleberry Finn*. Fuel being cheap, the boilers were merely water drums in a brick seating. The pressure was low, the iron piping of gas-fitter standard with plenty of right-angle bends, the feed pumps of primitive design, and a crude form of jet condensation. But they had first-class lines and were immensely powerful at about 15 r.p.m. The fuel consumption was very heavy and expensive, and the American boat was later fitted with a Yarrow boiler, jet condensers and copper piping and is, I believe, still doing good service. But for the first World War, the author would have visited the U.S.A., Burmah, and elsewhere to see what further information was available.

Small launches gave many troubles. We tried early Diesels, a Lune Valley (steam with flash boiler) but the only successful ones were some fitted with Gardner engines which ran a mail connection in the Bahr el Ghazal. We soon found that any type with a clutch was anathema, as the inevitable groundings always put the shaft out of line, and caused clutch seizure. The remedy was to do away with the reverse, an inconvenience that mattered little, as there was little traffic, and the reis could always face upstream to go alongside.

About 180 officers from the British Armed Services, included only four from the Royal Navy ; Commander Bond and myself in the Steamers Department, Lieut. Huntly Walsh (a navigator) as inspector in the Upper Nile, and

Lieut. Drury who was in charge at Port Sudan. We were alive to the very high opinion the Army seemed to have of the Senior Service, and we endeavoured to live up to it. Our full dress uniform with spiked helmet, gilt chinstrap, striped overalls and gilt spurs, but with our naval swords, led to some chaffing from the Navy, when encountered. Drury, on one occasion when paying an official call at Port Sudan, had his spurs removed and kept in the mess as a souvenir.

When the railway opened south of Khartoum, the old Steamers Department was threatened as a separate entity and, after my departure, was absorbed by the railway administration, and the Navy was no longer represented, though the old staff of European engineers continued to man the vessels.

As we had foreseen when a separate department, railway mentality differs greatly from that of seagoers. There is a greater tendency to centralize, and a habit of referring everything to H.Q.—a fruitful cause of delay in such a country. But time and experience have now welded the whole into an efficient body, which, it is to be hoped, will not deteriorate under the new conditions in the Sudan.
