

JOURNAL OF THE ROYAL SOCIETY OF ARTS

No. 3985.

VOL. LXXVII.

FRIDAY, APRIL 5th, 1929.

All communications for the Society should be addressed to the Secretary, John Street, Adelphi, W.C.(2.)

NOTICE.

NEXT WEEK.

WEDNESDAY, APRIL 10th, at 8 p.m. (Ordinary Meeting.) G. H. NASH, C.B.E., M.I.E.E., European Chief Engineer, International Standard Electric Corporation, "Some Modern Aspects of Electrical Communication." SIR RICHARD A. S. PAGET, Bt., will preside.

FRIDAY, APRIL 12th, at 4.30 p.m. (Indian Section.) A. T. COOPER, M.Inst.C.E., M.Cons.E., "Recent Electrical Developments in India." SIR STANLEY REED, K.B.E., LL D., will preside.

Tea will be served in the library before the meeting from 4 o'clock.

PROCEEDINGS OF THE SOCIETY.

INDIAN SECTION.

FRIDAY, FEBRUARY 8TH, 1929.

VICE-ADMIRAL SIR HERBERT W. RICHMOND, K.C.B., Commandant, Imperial Defence College, and late Commander-in-Chief, East Indies Squadron, in the Chair.

THE CHAIRMAN, in introducing the lecturer, said that Sir Edward Headlam spent a large part of his life in the Indian Marine, and during the last six years had been Director of that Service. He would not raise any blushes on Sir Edward's cheeks by referring to his services during the War, beyond saying that they had been very distinguished, and that the work he had done both during and since the War had been of great value and importance to India and the Empire. He desired to take the opportunity of acknowledging the great debt which he himself, during the time he had been Commander-in-Chief in the East Indies, owed to

Sir Edward Headlam for the manner in which he had assisted him in everything which had had to be done. Nothing could have been more admirable, and nothing could promise better, than the co-operation of the various services of the Empire at that time. Sir Edward Headlam had placed the Marine at the service of the Squadron on every possible occasion on which he had been asked to do so. It had been a most pleasant duty to work with him, and the pleasure which he had had in working with him in those days he was sure those present would have now in listening to what Sir Edward had to say.

The following Paper was then read :—

THE HISTORY OF THE ROYAL INDIAN MARINE.

By CAPTAIN SIR E. J. HEADLAM, C.S.I., C.M.G., D.S.O., R.I.M.,

Late Director, Royal Indian Marine.

At the commencement of this paper I should like to make it clear exactly what has been meant by the Indian Marine Service in the past. In England to the vast majority of people India is still but little known, and it is only natural that people should know still less about the smallest of all the Indian Government Services ; in fact, it is no exaggeration to say that even in India itself a great many people do not know what were, and what now are, the functions of the Royal Indian Marine. There is also among those who do know something of the history of India a tendency to consider that the days when the Service was called the Indian Navy was its chief period of activity. It certainly was a glorious period of its history, as it included participation in wars in Burma, China, New Zealand, the Sepoy revolt in India and the Persian War. But the actual period during which the Service was called the Indian Navy was only 33 years.

By Indian Marine, for the purpose of this paper, I include the history of the Sea Service under whatever British form of Government obtained in India from the year 1612 until the present day, under the various titles it has been called at different periods.

The Sea Services under the Government of India have been known by varying titles since their first conception in 1617. Thus from 1612 to 1686 the Service was known as the Honourable East India Company's Marine, from 1686 to 1830 as the Bombay Marine, from 1830 to 1863 as the Indian Navy, and from 1863 to 1877 again as the Bombay Marine. In 1877 the title was altered to that of Her Majesty's Indian Marine, and this title lasted until 1892, when the present designation of Royal Indian Marine was finally adopted. The full title of the Service is His Majesty's Royal Indian Marine Service, but as this is rather ponderous for ordinary use it is called generally the Royal Indian Marine.

The opposition and annoyance caused to the East India Company by the Dutch, the Portuguese, and the pirates of the western coast, were the primary cause of the establishment of Naval Forces in India, of which the earliest

representative may be said to have been Captain Thomas Best, with his two ships, *Dragon* and *Hoseander*. These two vessels, together with others which arrived subsequently, reached Surat in 1612, and were engaged for three years in the almost continuous warfare which culminated in the grant by the Emperor Jahangir to the East India Company of a firman, authorising the English to trade within his dominions. The Marine forces, which at this date (1615) consisted of ten armed grabs, or gallivats, formed the original nucleus of the Bombay Marine, and up to the year 1668 were engaged in a practically unintermittent and, on the whole, successful struggle with the Company's foes both along the Indian coast and in the Persian Gulf. In 1659, the year following the cession of Bombay by the Crown to the Company and the appointment to the Deputy-Governorship of Captain Young of the Marine, a further development took place in the construction at Bombay of small armed craft for the defence of merchant-vessels trading with the ports of the Persian Gulf and the Arabian Sea. Among other vessels, two small brigantines are recorded as having been built by Mr. Warwick Pett, who was a descendant of Sir Phineas Pett, the famous shipwright of Elizabeth's reign, and who had been despatched to Bombay for this purpose with a full supply of marine stores and equipment for ship-building.

The construction of these ships at Bombay, about 1670, may be regarded as the earliest step towards the withdrawal of the Marine from Surat to the island of Bombay, which lent the name by which it was distinguished up to 1829, and which to the present day serves as its headquarters. The Marine played a regrettably conspicuous part in Captain Richard Kegwin's infamous mutiny at Bombay in 1683; for the officers and crews of the *Revenge* and the *Hunter*, both being vessels of the Bombay Marine, threw in their lot with the rebels, Captain Alderton, of the *Hunter*, being one of the four ringleaders to whom a pardon was not granted under the Royal Commission of August 24, 1684. As a set-off, however, against these disloyal acts, it is to the credit of the Service that the final surrender of the island was obtained by Sir Thomas Grantham, an officer of the Company's Marine Forces.

Under the Royal Commission which dealt with this mutiny Sir John Child, the President of Surat, was appointed Captain General and Admiral of the Company's land and sea forces, with Sir Thomas Grantham as Vice-Admiral, and the senior Captain of the Company's ships as Rear-Admiral, the three thus becoming the earliest official heads of the Indian Marine Service. In the following year (1684) Sir John Wyborne was appointed Vice-Admiral and Deputy Governor of Bombay; and in 1686 the seat of the Company's Government was transferred from Surat to Bombay, the marine stores being located in the Castle, and the Company's ships being anchored in Bombay harbour.

The Marine suffered to some extent from the spirit of insubordination and dissatisfaction which characterised the closing years of the seventeenth century. In addition to the notorious wave of sickness which afflicted all classes at this

period, considerable reductions were made in the strength of the marine establishment, particularly during the administration of Sir John Child; and these two circumstances, in combination with other minor causes of dissatisfaction, gave rise to frequent desertion.

Matters, however, improved after the transfer of the seat of Government to Bombay; the marine forces became officially known as the Bombay Marine; an officer was regularly appointed Admiral every year; and the supply of men to both higher and lower ranks was maintained by drafts from Europe. These arrangements were indeed rendered absolutely essential by the need for protecting the island against the attacks of pirates, and by the fact that the Company had still to make headway against the superior maritime forces of the French, Dutch and Portuguese. Desertion too was still an evil to be reckoned with for several years to come, and culminated in 1724 in an order to hold the pay of all seamen two months in arrears, in the hope that this would act as a deterrent.

The first notable action fought by the Marine after its re-constitution was the siege of Gheria, the stronghold of Angria, in 1717. In the previous year the total strength of the sea forces consisted of one ship of 32 guns, 4 grabs mounting from 20 to 28 guns, and 20 grabs and gallivats carrying from 5 to 12 guns apiece, but in spite of this by no means inconsiderable armament, Angria's stronghold proved impregnable and Commodore Berlew had perforce to raise the siege. On the 5th November, 1718, the Marine laid siege to Kenery the force being under the command of Manuel de Castro, whom the President, much to the annoyance of the English Captains of the gallivats, had appointed Admiral of the Fleet. It was no doubt partly on this account that the President had to engage volunteers for the attack, promising that the widows and children of any who lost their lives should receive respectively £30 and £10 apiece. The attack failed in spite of the bravery of Major Stanton and others, and it was in consequence of this ill-success that the President decided to add to the fleet "a floating-castle or a machine that should be almost cannon-proof." "This vessel," writes Downing, "was pretty flat, flowed with little or no bilge and but six-foot hold. The thickness of her sides was made by the nicest composition cannon-proof. She was to go with one mast and a top sail which was rigged in a very commodious manner, and mounted 12 guns carrying 48 pounders." This machine proved of very little service and was shortly afterwards destroyed as worthless. Four years later (1722) the Bombay Marine made a joint expedition with the Portuguese against Alibag, the latter providing the land force, the naval force consisting of three ships under Commodore Mathews.

A contemporary writer, alluding to the ill-success of the expedition, remarks that "the Viceroy of Goa with much pretended zeal came in person, designing to head such forces as he had raised, and the General of the North also came down to Bombay, and was most magnificently entertained by the President."

But on the day of the attack "the Viceroy of Goa went on board his ship, pretending that he was very ill. The Commodore sent his own doctor to offer his services and supply him with such medicines as should be convenient for him, if he was really ill. But the doctor returned and reported to the Commodore that he did not perceive anything to be the matter with him." The timidity, if not treachery, of the Portuguese Viceroy communicated itself to his troops and turned a well-timed attack into complete defeat, and the only satisfactory feature of the engagement was the behaviour of the Marine forces, which lost many officers and men.

During the early portion of the eighteenth century the position of Bombay, menaced as she was by the Portuguese, Sidis and Marathas, was so insecure that the Bombay Council spared no pains to enhance the value of the Marine both by improving the morale and numerical strength of the men and by increasing the fleet. Thus in 1731 the Court of Directors approved of a scheme of pensions for the widows of officers and seamen who had performed distinguished service; they indented largely upon their trading vessels for the manning of the warships; they purchased new vessels, notably the *Rose* galley in 1733, for Rs. 14,000; and in 1733 they brought down from Surat Lavji Nasarwanji Wadia, the Parsi ship-builder, who selected the present site for the Government dockyard. The Marine charges at that date amounted to Rs. 1,81,000 a year, and the fleet comprised, in addition to several gallivats and boats, seven large warships, namely the *Victoria* (frigate), the *Neptune* (grab), the *Prince of Wales*, the *King George*, the *Princess Caroline* and the *Rose* (all galleys), and the *Salamandar* (bomb ketch). Between 1739 and 1741 continual additions were made to the fleet under the auspices of Lavji Nasarwanji, as, for example, two 90-foot grabs, carrying 20 guns, and a 90-foot "sea-going ship" carrying 11 guns in a line, so that by the end of 1741 the Commodore was able, after inspection of the fleet, to report that the vessels were "entirely clear and in a proper posture for defence," and that the total strength of the fleet was:—One ship of 44 guns, 4 ships of 28 guns, 4 ships of 18 guns, 6 bomb ketches, and 20 large gallivats, manned altogether by 100 officers and from 1,700 to 2,000 seamen. Among the salient events of this period with which the Marine was directly connected may be mentioned the defeat of Sambhaji's fleet at the mouth of the Rajapur river by Commodore Bagwell and four cruisers on the 22nd December, 1738; the conclusion, by Captain Inchbird of the Marine, of a treaty with the Maratha General Chimnaji Appa on the 12th July, 1739; and the complete loss with all hands of three fine grabs, commanded by Captains Rigby, Sandiland and Nunn, in the terrible storm of the 9th November, 1739.

Discipline in these days was no easy matter. The ships were chiefly manned by British sailors, many of whom had been released from jails on their promising to serve, and a considerable number were deserters from British and other European vessels.

The year 1742 being void of "alarums and excursions," the Bombay Council decided somewhat prematurely to reduce their Marine establishment. They abolished the post of Admiral and contented themselves with a Superintendent, eight Commanders, one of whom was styled Commodore, three First and four Second-Lieutenants, four third officers and six masters of gallivats, together with a certain number of midshipmen. The immediate outcome of this action was that the mercantile fleet, now larger than ever, suffered serious losses at the hands of the pirates; while in 1744 after the declaration of war between England and France, when two French privateers were hovering off Bombay to intercept the East Indiamen, the only protective measures they could adopt were the equipment of three ships of inferior strength and the despatch of six fishing-boats to give the alarm to any English vessel approaching Indian shores.

Two notable events mark the close of the first half of the eighteenth century, namely, the mutiny on board the *Bombay*, in 1748, and the completion of the first dry dock (now the upper Bombay Dock), in 1750. The former event occurred while the *Bombay*, commanded by Captain Rough, lay at anchor off Rajapur. The mutineers attacked their officers while at supper, overcame them and placed them under an armed guard; but being wholly ignorant of navigation, and having nearly wrecked the vessel on a lee-shore, they were persuaded to return to duty on condition of receiving a free pardon, Rs. 200 in cash, and a free passage to England. These terms were carried out in all cases except those of Surgeon William Wills and four seamen. The former, convicted by a court-martial of exciting disaffection, was paraded through the fleet with a halter round his neck and hanged; and the latter had to submit to a severe public flogging. The dry dock previously mentioned was completed in 1750 and was the first dry dock in the East, and is still in regular use.

At the commencement of 1756 a Royal Naval Squadron, under Vice-Admiral Watson, visited Bombay for the first time since the island had become the property of the Company. Taking advantage of this circumstance, a combined military and naval expedition was despatched from Bombay against Vijayadrag, the stronghold of the pirate Tulaji Angria. The military forces consisted of 800 European soldiers, 300 Topasses, and 300 Sepoys under Colonel (afterwards Lord) Clive; while the naval forces comprised *H.M.S. Kent* (the flagship, 75 guns), *H.M.S. Cumberland* (flagship of Rear-Admiral Pocock, 66 guns), *H.M.S. Tiger* (60 guns), *H.M.S. Salisbury* (50 guns), *H.M.S. Bridgewater* (20 guns), and *H.M.S. Kingfisher* (16 guns), and the Bombay Marine ships *Protector* (Commodore James, 44 guns), *Revenge* (28 guns), *Bombay* (28 guns), *Guardian* (28 guns), *Swallow* (16 guns), together with the bomb vessels *Drake*, *Viper*, *Triumph*, *Warora* and *Despatch*. On the latter were embarked a company of artillery under Captain Torey and the fleet was further augmented by grabs and 40 gallivats belonging to the Marathas. Suspicions, however, being entertained that the Marathas were acting in concert with Angria,

operations were precipitated so as to exclude them from all share in the enterprise. The Admiral having attacked and burned the pirates' fleet, Clive interposed his forces on the land side between the fort and the Maratha general who had hastened to co-operate. On February the 13th, 1756, the fort fell, and a large quantity of cannon, ammunition and specie fell into the hands of the victors. The total disappearance of Angria from the arena of external politics led to a proposal again to reduce the Marine, but this the Bombay Council declined to do, owing to the fact that war had broken out between France and England. Hence it came about that Commodore James was enabled, firstly, to seize the French ship *Indienne* and carry her as a prize into Bombay, and, secondly, to start on a voyage round the coast of India in the middle of the south-west monsoon, with the object of proving that communication between the eastern and western coasts of India was possible at all seasons of the year. This feat of navigation, which largely revolutionised the existing ideas of the value of the Marine, was of double service to the English, for Commodore James not only brought to Bengal the first tidings of the outbreak of hostilities with the French, but also lent 500 men from his ships to Fort William, by which timely accession to their strength Admiral Watson and Colonel Clive were enabled in March, 1757, to capture Chandernagore, and thus deal a severe blow to French power and commerce in the East.

Commodore James retired shortly after this and was presented with a sword of Honour by the Directors and a seat on the Board, of which he afterwards became Deputy Chairman and also entered Parliament. In 1778 he was created a Baronet and subsequently became Governor of Chelsea Hospital and an Elder brother and Deputy Chairman of Trinity House.

During the critical years of warfare between France and England the ships of the Bombay Marine were constantly engaged in co-operating with the Royal Navy, fighting actions off the Indian coasts, and in successfully acting as "the police of the Indian seas" against the many bands of pirates which still infested the Persian Gulf and western coast. Their excellent services had the effect of directing the Company's attention more closely to their circumstances and welfare; and the stringent orders from the Court of Directors anent the religious and moral character of both officers and men, and the prohibition in 1751 of gambling and swearing, were followed in 1760 by permission to wear a regular uniform, and in 1766 by the issue of a complete set of orders regarding discipline for the use of Commanders, which constituted the first body of official regulations, ever published for the Marine service. Later, in 1771, the pay of seamen, who had been in the habit of demanding exorbitant wages, was formally regulated, and the total force, which had somewhat outgrown the needs of the period, was reduced and re-organised. The year 1772 witnessed the first surveying expedition undertaken by the Bombay Marine. It consisted of the schooner *Fox* (6 guns), the *Dolphin* ketch, and one patamar under the command of Lieutenant Robinson, aided by Lieutenant Porter and Midshipmen

Blair and Miscal, who engaged to explore the coast of Mekran, Sind, and Kathiawar, and a portion of Arabia and Persia. They may be said to have laid the foundations of the present Marine Survey of India, which throughout the various vicissitudes of the Indian Naval Service has ever continued to carry out the arduous task of scientifically delineating the coasts of India, Burma, and the Persian Gulf. Two years later (1774) a squadron of the Bombay marine under Commodore Watson co-operated with Brigadier-General Robert Gordon in the attack and capture of Thana from the Marathas, and in 1755 occurred an heroic struggle between the *Ranger*, commanded by Lieutenant Pruen, and an overwhelming Maratha fleet under the command of the Peshwa's Admiral Anandrao Dhulap, in which nearly every officer and seaman on board the *Ranger* was either dangerously wounded or killed.

In 1780 the ships of the Bombay Marine formed part of the squadron under Sir Edward Hughes which co-operated in the suppression of Hyder Ali; and in December two years later (1782) a squadron under Commodore Armitage, who flew his broad pennant in the *Bombay*, acted in concert with General Mathews on the Malabar coast and helped to capture Rajamandrug, Meju, Kundapur, Annanpur and Mangalore. In brief, there was hardly a naval engagement in the East during the latter half of the 18th century in which the Bombay Marine did not play a part; and it rendered excellent service at the capture of Pondicherry, Trincomalee, Jafnapatam and Colombo. Among minor engagements may be mentioned that between the *Vigilant* (6 guns) commanded by Lieutenant Hayes and four vessels belonging to the Sanganin pirates in 1797. The *Vigilant* had been despatched on a political mission to the Hakim of Soumiana, and while crossing the Gulf of Cutch was attacked by the four pirate ships, each of whom was more than double her size. After three hours desperate fighting, during which she had two of the enemy's vessels lashed on each side, the *Vigilant* managed to drive them off with complete loss. During this period of almost continuous warfare, the casualties, such as that of the *Revenge* which foundered with all hands in 1782, were largely counter-balanced by the zeal in shipbuilding of Maneckji Lavji, one of the famous family which for more than a century held the post of master ship-builders to the Marine.

The year 1780, and those immediately following it, were particularly notable for activity in ship-building, among the finest vessels launched from the Government dockyard being the *Malabar* (74 guns), and the *Ganges* (92 guns), which afterwards served as the Flagship of Sir Edward Codrington at the battle of Navarino.

It had been found that the teak forests of Malabar produced timber which was not only more durable than oak, but also contained properties which rendered it less susceptible to the *teredo* worm so prevalent in Eastern waters. Moreover oak was becoming scarce in England, and the cost of labour in India was so low that a battleship could be built in India for £20,000 less than in England.

The first sea-going ship built by the Wadia family in the Indian Marine Dockyard in Bombay was launched in 1735. The last was the surveying ship *Investigator*, built in 1881, which was in commission for nearly thirty years. Many famous ships were built for the navy as well as the two previously mentioned, among them the *Euphrates*, *India*, *Hindustan*, and *Asia*.

In August, 1798, the Court of Directors revised the Marine Regulations, conferred relative rank as well as a retiring pension upon the officers, and formally prohibited the privilege of private trading which had up to that date been permitted to all members of the Marine service. Further, the duties of the service were distinctly defined to be :—(a) The protection of trade ; (b) the suppression of piracy and the performance of the general duties of war vessels ; (c) the convoy of transports, and, if necessary, the conveyance of troops ; (d) the prosecution of Marine Surveys in the East. A civilian Superintendent, Mr. Philip Dundas, was appointed head of the Marine Board, and the two senior officers in the service were respectively appointed Master-Attendant and Commodore at Bombay. The remainder of the personnel comprised 13 Captains, 33 First-Lieutenants and 21 Second-Lieutenants, and 37 Volunteers. Later, on the 31st May, 1814, a table of procedure in India was fixed by the warrant of the Prince Regent, whereby the Superintendent of Marine took rank after Generals and Flag-Officers, Commodores after Commodores of the Royal Navy, and Senior Captains after Captains of the Royal Navy of more than three years' service. Fresh regulations as to uniform were published in 1820, and in 1824 the rank of Commander was temporarily abolished and an increased number of Captains' appointments were created. Finally, on the 30th June, 1827, a Royal Warrant conferred upon the officers of the Indian Marine equal rank, according to their degree, with officers of the Royal Navy within the limit of the East India Company's Charter, a warrant from the Admiralty permitted the vessels of the Bombay Marine to fly the Union Jack and Pennant, and it was decided that an officer of the Royal Navy should henceforth be Superintendent or head of the Marine Service. The year 1830, the last of the period under discussion, witnessed the inauguration of a family pension fund under the auspices of the Bombay Government, and the alteration of the title of the service to that of Indian Navy, the number of officers at this date being 12 Captains, 9 Commanders, 51 Lieutenants and 69 Midshipmen.

Captain Sir Charles Malcolm, C.B., was the first officer of the Royal Navy to be head of the Marine. He was also the founder of the Bombay Geographical Society, now no longer in existence, and the first important act of his administration was the commencement of the Red Sea survey.

Meanwhile the service had successfully maintained its reputation for efficiency and courage. Several vessels of the Bombay Marine participated in the Egyptian Campaign of 1801, under Sir Ralph Abercrombie, and in 1803 a squadron under Commodore John Hayes was despatched to protect the trade

of the Bay of Bengal from French aggression. It was during this year that the Company's fourteen-gun brig *Fly*, carrying despatches, was captured in the Persian Gulf by the French frigate *La Fortune*, commanded by the famous Captain Surcouff. The commander of the *Fly* with great gallantry succeeded in running his ship into shoal-water and there sinking all his treasure and despatches in order to prevent their being seized by the enemy.

In 1810 a squadron of five Bombay ships under Captain Deane helped the naval forces under Admiral Bertie to take Mauritius and capture the French ships in Port Louis. In 1811 another squadron under Commodore Hayes participated in the conquest of Java. For their services on this occasion the officers and men received the medal granted for the expedition and were warmly thanked by the Governor-General, Lord Minto. Again, in 1813, the Bombay Marine was employed in the action against the Sultan of Sambar, losing many men from wounds and sickness; and in 1815 a small squadron under Captain Blast was despatched to blockade the coast of Cutch and the strongholds of the piratical tribes of Kathiawar. During the Maratha war was the attack on the fort of Suvarandrug, in December, 1817, and the reduction of the fort of Madangad, gave further opportunities to the Bombay Marine to display its fighting capabilities, which were warmly acknowledged by the Governor-General in Council and by Colonel Kennedy, who commanded the assault on the latter stronghold. In 1819 a squadron under Captain Hall performed yeoman service in the extermination of piracy in the Persian Gulf. The year 1820 was memorable in marine annals for the siege of Mocha, which fell after a spirited defence on the 27th December, chiefly owing to the gallant conduct of the Bombay Marine forces under Lieutenants Faithful, Robinson, Jones, Elwin, and Tanner; and in the following year Captain Hardy (*Teignmouth*), Commander Start (*Prince of Wales*), Lieutenant Dominicitti (*Psyche*), and Lieutenant Robinson (*Vestal*) fought the famous action which reduced the Ben-ibn-Ali Arabs to submission. On the close of the 1st Burmese war, in 1826, the Bombay Marine shared with the Royal Navy the thanks of both Houses of Parliament for their "skill, gallant, and meritorious exertions" in the operations against Ava; while in 1827 the *Amherst* was employed under Sir Gordon Bremner in blockading Berbera and the adjacent Somali coast as a reprisal for the plunder of an English brig by Somalis in 1825.

Nor was the important work of Marine surveying neglected during these early years of the nineteenth century. A Marine Survey Department was established in Bengal in 1809, Captain Wales of the Bombay Marine being appointed the first Surveyor-General, and much important work was carried out in the Bay of Bengal by the *Assaye*, the *Panther*, and the *Antelope*. In the year previous Captain Horsburg, Hydrographer to the Company, published the first edition of his East India Directory, which was largely based upon the surveys carried out by officers of the Bombay Marine. In 1811 the *Ternate* and the *Sylph* under Captain Sureau surveyed the East Coast of Africa as far

South as Zanzibar, and from 1821 onwards, under the auspices of Captain Daniel Ross, a thorough survey of the Persian Gulf and other seas was performed by Lieutenants Wellstead, McCluer, and Haines. In the schemes for retrenchment which Lord William Bentick formulated in 1828 the Marine Survey Department was almost abolished, but so important was its work acknowledged to be that in 1830 two brigs were again commissioned for survey duties. In the same year Commander John Nilson undertook an experimental voyage in the *Hugh Lindsay*, a steamer built in Bombay, with the object of proving that the Red Sea route must, with the advent of steam, become the high-road between Europe and India. The voyage to Suez took 29 days, and in spite of the difficulty of carrying sufficient coal in so small a vessel (411 tons) it was successful.

Some idea of the hardships these early surveyors underwent may be realised when we consider that in the burning heat of the Red Sea, the East Coast of Africa and the Persian Gulf they were away from civilisation for two and three years at a time in small ships of two or three hundred tons, dependent on local and nearly always brackish water, and largely living on bad biscuits and salt pork and beef in confined spaces, where it was impossible below decks for an average man to stand upright.

The Bombay Marine and Indian Navy saw a considerable amount of service in the nineteenth century. On the 16th April, 1835, Captain Sawyer, of the *Elphinstone*, shattered the power of the Beni-yas Arabs of the Persian Gulf, who had fitted out a powerful fleet of three hundred bagalas with the avowed intention of attacking and overpowering the Company's cruisers; and in the same year several officers of the Indian Navy took part in the successful expedition which explored the Shat-el-Arab and Euphrates, and paved the way for trade by peaceful negotiations with the Arabs. Three years later (1838), when it was decided to occupy Afghanistan, the vessels of the Indian Navy were employed to convey troops to the mouth of the Indus and to act as a blockading squadron at that point; while in 1839 a squadron was despatched to aid in the occupation of Karachi, which, however, fell without a struggle. In the same year, during the operation which followed the evacuation of the British Residency at Bushire, the Indian Navy ships *Tigris* and *Euphrates* were placed under the orders of Admiral Maitland, who, on relinquishing his command in the Persian Gulf, passed a high eulogy upon the conduct of both officers and men; and a still more favourable commendation was passed both by the Court of Directors in 1840 and the Bombay Government in 1839 on the conduct of Commander Haines, Lieutenant Daniel and Midshipman Nisbett at the bombardment and capture of Aden in the latter year. Nor must mention be omitted of Captain Moresby and Lieutenant Barker, both officers of the Indian Navy, who concluded the commercial treaty of 1840 with Sultan Muhammad of Seila, whereby the Mussah Islands in the Bay of Tajura were ceded to the British. The same year is memorable for the outbreak of the

China war (1840-42), when the Indian Navy ships *Auckland*, *Sesostris*, *Akbar*, *Memnon*, *Medusa* and *Ariadne* co-operated with the Royal Navy ; while in 1843 the *Mootner*, the *Satellite* and the *Planet*, under Commander Nott, participated in the expedition to Sind, the officers and crews of the three ships taking part in the battle of Miani and the capture of Hyderabad, and receiving the Sind Medal with clasp for their services. Shortly afterwards, on the outbreak of the insurrection of 1844-45 in the Southern Maratha Country, the Indian Navy carried to Vengurla the troops despatched to quell the revolt ; and in the military operations of 1845-46 in New Zealand the *Elphinstone* under Commander Young played a prominent part in the capture of Ruapetapekar. Well deserved, too, was the commendation passed by the Court of Directors and the Governor-General upon Commander Powell and his men who constituted the Indus Flotilla during the operations prior and subsequent to the Siege of Multan in 1848-49 ; and the honours awarded to officers of the Indian Navy on the close of the Second Burma war (1852) were universally held to be but a just acknowledgment of the services of men who had shared in the capture of Martaban, Rangoon, Bassein, Prome and Pegu, and had borne no small part in the suppression of dacoity on the Upper Irrawaddy. One of the salient features of the war was the excellent shooting of the Indian Navy Flotilla, which contrived, as stated by a contemporary writer, that the shell burst to a hair's breadth just where they were intended to, and did the precise amount of mischief required. The year 1852 also witnessed the suppression of pirates on the north-east coast of Borneo by the *Semiramis* and *Pluto*, while the *Queen* and the *Elphinstone* were engaged four years later (1856) in helping the Turks to defend Hodeida.

Meanwhile the condition of affairs in Persia was such as to oblige the Indian Naval authorities to strengthen their squadron and commission new warships. The fall of Herat brought matters to a head, and on the 1st of November, 1855, the Governor-General issued a declaration of war against Persia. The naval portion of the forces engaged was drawn entirely from the Indian Navy, with Rear-Admiral Sir H. J. Leeke in command, and Commodore Ethersay of the Indian Navy as second-in-command. Bushire was bombarded and captured on the 10th December, 1856, and a similar fate befell the strongly fortified town of Mohammerah on the 26th March, 1857. The latter action drew from the Governor-General in Council a most eulogistic notification, of which the following is an extract :—“ That the officers, seamen, artillerymen, marines and others of the squadron did their duty with intrepidity and ardour is the smallest part of the praise which is owing to them. The plan of the naval attack, which was to be carried out in shoal and narrow waters, and in a rapid current, by steamers of heavy draught, some of them encumbered with vessels in tow, and the thoroughly successful execution of every part of it, without miscarriage or confusion of any kind in face of strong defensive works at point-blank range, have given proof of a cool judgment, a well-ordered discipline,

and a skilful management, of which Commodore Young and the officers and men under his command may well be proud." Among minor services performed by the Indian Navy at this date may be mentioned the participation of the *Auckland* (Commander Draught) in the suppression of piracy in Borneo in 1856-57, and in the military operations in South China, as well as the seizure of Perim Island in 1857 by Lieutenant Templar, commanding the *Mahi*.

The outbreak of the Indian Mutiny in 1857 offered the Indian Navy further opportunity for active service. A naval brigade from the *Auckland*, *Punjab*, *Semiramis*, *Zenobia* and *Coromandel* served for nearly three years in the military operations in Bengal and Assam; the *Berenice* and *Victoria* transported troops both to Karachi and the ports of the South Konkan in the teeth of the south-west monsoon; a second naval brigade co-operated with the military forces in the Southern Maratha country; and Captain Jones of the Indian Navy earned the unqualified approval of both the Indian and British Governments for his energy and success in holding Persia and the Arab tribes of the Gulf at bay during the greatest crisis that British prestige in the East has ever had to face. The tale of the war services of this period closes with the successful bombardment of the Island of Bet, in the Gulf of Cutch, in 1859, and the prosecution of the China war of 1860, in the course of which the attack on the Taku forts was led by the *Coromandel*, under the command of Lieutenant Walker of the Indian Navy.

I may mention that two V.C.'s were won by the Indian Navy in the Mutiny.

As regards the organisation of the Marine and Indian Navy from 1830 to 1863, various facts deserve notice. In the first place, the appointment of Master Attendant was abolished about 1831, his place being taken by a Controller of the Dockyard; and in 1838-39 a steam packet service for the carriage of mails to Egypt was instituted as an integral branch of the Service. In fact, from this date the Service commenced to exchange its sailing vessels for steamers; the whole nature of the service was altered, and the establishment was reduced from 7 Captains, 12 Commanders and 45 Lieutenants to 4 Captains, 8 Commanders and 40 Lieutenants. This reduction resulted in many of the ships being under-officered, so that in 1841 the establishment had again to be increased to 6 Captains, 12 Commanders, 48 Lieutenants and 72 Midshipmen and mates. Nor was this increase final, for in 1847 orders were issued fixing the complement of officers at 8 Captains, 16 Commanders, 68 Lieutenants, 110 Midshipmen, together with 14 Pursers and 12 Captain's clerks, 14 Masters and 21 Second Masters.

At the same time the Superintendent was created a Commodore of the first class in the Indian Navy, while the Assistant Superintendent was always to be a Captain on the effective list. The post of Superintendent was, however, finally abolished in the year following (1848), Commodore Sir Robert Oliver being created Commander-in-Chief of the Indian Navy; and the broad pennant of the Indian Navy, which had up to that date been identical with that of

the Royal Navy, was exchanged for a red flag with a yellow cross, and the Company's cognizance of a yellow lion and crown in the upper canton nearest the mast.

Despite the almost continuous war service on which the Bombay Marine and the Bombay Navy were employed in the first sixty years of the nineteenth century the important work of hydrographic surveying was not neglected. In spite of difficulties and privations surveys were carried out on the East Coast of Africa, the Gulf of Aden, the Persian Gulf, the Maldivé and Laccadive Islands and on the Coast of India and Burma. In 1861 the Indian Hydrographic Office was abolished and the Survey Department worked in close co-operation with the Hydrographer of the Admiralty, by whom all charts were published, and this procedure continues to the present day.

On the abolition of the title of Indian Navy officers were given the opportunity of retiring on pension or of accepting the new conditions; the European ratings were gradually paid off and entire Indian crews substituted, these being recruited from the Mohammadan seafaring people of the Ratnagiri district south of Bombay, the descendants of the old Maratha pirates against whom the old Bombay Marine had so long struggled. These men have formed the crews of R.I.M. ships until this year, when recruiting has been opened all over India. The title of the Service now again became the Bombay Marine. Practically immediately that the Indian Navy was abolished it was generally conceded both at home and in India that the policy was a mistaken one. However, it was too late to alter it, and as is well known, Governments are not prone to acknowledge they have been in the wrong. A scheme was discussed to maintain an armed squadron in the Persian Gulf, but except that certain of the ships still carried their guns, nothing very much came of it. The ships continued to carry on naval duties in a reduced manner and in 1867 the Indian Troop Service was organised.

This was followed in 1877 by the entire reorganisation of the Marine Service, Captain (afterwards Admiral) Bythesea, V.C., C.B., C.I.E., having been appointed Consulting Naval Officer to the Government of India for this purpose in 1874. In accordance with the scheme propounded by Captain Bythesea, the Bombay Marine was amalgamated with the other Marine establishment in India under the title of Her Majesty's Indian Marine, the service being divided into a western division with its headquarters at Bombay, and an eastern division with its headquarters at Calcutta; and the duties of the amalgamated service were defined to be (*a*) the transport of troops and government stores on the Indian coasts or to any country to which it might be necessary to despatch troops; (*b*) the maintenance of station-ships in Burma, the Andaman Islands, Aden, and the Persian Gulf, for political, police, lighting and other purposes; (*c*) the maintenance of gunboats on the Irrawaddi and Euphrates, and (*d*) the building, manning, repairing and general supervision of all local government vessels and launches and of vessels and launches used for military purposes.

In 1882 the rapid extension of the Marine Service led to the abolition of the appointments of Superintendents at Bombay and Calcutta, which had formed part of the reorganisation scheme of 1877, and to the creation in their place of a Director, who was always to be an officer of the Royal Navy, with his headquarters in Bombay, and of a Deputy Director, to be an officer of the Indian Marine stationed in Calcutta. In October, 1887, the present Indian Marine Act came into force, and in 1891 Her Majesty Queen Victoria issued an order in Council altering the title of the Service to that of Her Majesty's Royal Indian Marine Service, usually called the Royal Indian Marine, and providing that the officers of the Marine should rank with, but junior to, Royal Naval Officers of equal rank, and should wear the same uniform as officers of the Royal Navy, with the exception of the device on the epaulettes, sword-hilt, badges and buttons, and of the lace on the sleeves. Previously, in 1884, the Admiralty had issued a warrant sanctioning the use by ships of the Royal Indian Marine of a special ensign (a blue flag with the Star of India in the fly) and the Marine Jack (a Union Jack with narrow blue border).

New regulations, designed to ameliorate the position of petty officers and seamen in regard to pension, were published in 1906, whereby the men were enrolled in the first instance for three years, with the option of electing for further service.

Hydrographic Surveying continued to be an important branch of the service, and in 1884 a naturalist was appointed to the *Investigator*, and since then an enormous amount of scientific research has been carried out by a succession of naturalists.

In 1871 the Indian Naval Defence Squadron was formed; this consisted of the two turret ships *Abyssinia* and *Magdala*, which were commanded and manned by the Marine, the guns being manned by the Royal Artillery.

In 1892 this squadron was increased by the addition of two torpedo gunboats and 7 torpedo boats and the Squadron was handed over to the Admiralty for the defence of India. The Squadron was commanded by a Captain of the Royal Navy as Senior Naval Officer, and was officered and manned partly from the navy and partly from the R.I.M. It was in this Squadron that the R.I.M. personnel received their war training, enhanced in the cases of officers by courses at Portsmouth and Greenwich while on furlough. The Naval Defence Squadron, which had become obsolete, was abolished in 1903.

Notwithstanding that after the abolition of the title "Indian Navy" the Marine was officially considered to be a non-combatant service, it still took its part in the struggles of the Empire.

Ships of the Bombay Marine and hired transports under the command of the Superintendent conveyed the expeditionary force from India on the outbreak of the Abyssinian war in 1868; while two of the service gunboats, the *Clyde* and the *Hugh Rose*, took part in the operations against Bahrein in 1870. The troops, guns and ammunition required for the prosecution of the Afghan

campaign of 1879 were likewise conveyed to Karachi by Indian Marine vessels, as also were the troops engaged in the Egyptian campaigns of 1882 and 1885. The year 1885 witnessed the fitting out of the R.I.M. turret-ship *Abyssinia* on a war-footing in consequence of the strained relations between the British and Russian Governments; and in October of that year the troopships and river steamers of the Indian Marine were again busily employed in the third Burmese War. This was followed by the Chin-Lushai expedition of 1889 and the Suakim expedition of 1896, in which the Indian Marine played an equally useful role; while on the outbreak of the South African War in 1899 the entire contingent from India was despatched by the Director of the Royal Indian Marine from Bombay with unequalled celerity, and a considerable number of the officers and seamen of the service were employed in transport and allied duties. The Service received the thanks of both Houses of Parliament for the celerity with which the troops from India were despatched to Natal.

The Indian Marine again saw service in North China in the Boxer rebellion in 1900-01, and in Somaliland in 1902-04, and in the gun-running operations in the Persian Gulf in 1911-12.

The outbreak of the Great War naturally found the R.I.M. unfitted to take a part as a naval service in the defence of the Empire, the officers being only partly trained for war, and the men, though loyal and well disciplined, untrained in combatant duties.

The troopships *Dufferin*, *Hardinge* and *Northbrook*, built to carry guns in war time, were immediately armed, as were also the smaller ships *Lawrence*, *Dalhousie* and *Minto*. These were handed over to the Navy and placed under a Naval Commander with R.I.M. officers and crew, the crews being strengthened with naval ratings.

All these ships were actively employed, the *Northbrook* being at one time the Flagship of the East India Squadron. The *Hardinge* took an active part in the battle of Touthoum, in the Suez Canal, where she suffered fairly heavily.

The *Dalhousie* flew the Broad Pennant of the Senior Naval Officer in the Persian Gulf, and the ships were chiefly employed in the Indian Ocean, Persian Gulf and Red Sea patrols. Of the remaining officers many were transferred to the Royal Navy, serving in H.M. ships or as Naval Transport Officers and Officers of the Inland Water Transport, in which department many of them were transferred to the Army. The men were employed in R.I.M. ships or in the R.I.M. ships which had been transferred to the Navy and Naval Transport staffs, and with the I.W.T. in Mesopotamia.

It is interesting to note that though there were less than 200 officers in the R.I.M. there were at one time or another officers of the R.I.M. serving in the Grand Fleet, the North Sea, Atlantic, France, Mediterranean, Egypt, the Red Sea, Mesopotamia and East Africa.

The retired officers volunteered for service to a man, and those who were not too old to serve served as Naval Transport Officers and officers of the I.W.T.

in France. In fact, the organiser and head of the I.W.T. in France until his death was Brig.-General G. Holland, C.B., C.I.E., D.S.O., a retired Commander of the R.I.M.

The officers of the R.I.M. gained 65 British and 6 foreign honours for service during the war, and many of the men received the India Distinguished Service and Meritorious Service Medals.

After the War the Government of India asked Admiral of the Fleet Lord Jellicoe, who was visiting India, to draw up a scheme for the reorganisation of the Service. His valuable suggestions were unfortunately too ambitious for Indian finances and could not be accepted.

Shortly afterwards the Esher Committee arrived in India to report on the Indian Army, and although the R.I.M. was not included in their terms of reference, they strongly recommended that the R.I.M. should be reorganised as a combatant service. The Government of India in 1920 obtained from the Admiralty the services of Rear-Admiral Mawby as Director, R.I.M., to draw up a scheme of reorganisation within limited lines. His scheme, however, was not adopted, and Admiral Mawby resigned his appointment.

The R.I.M. then fell upon hard times ; money was scarce, the report of the Inchcape Committee necessitated drastic retrenchments, and the working of the Montagu-Chelmsford reforms resulted in the Local Governments having to defray the cost of the work of R.I.M. ships on their various stations, on lighthouse duties, transport work, carrying of officials, etc. The Local Governments were naturally inclined to think that if they had to pay they would like to have a say in the management, and that if the work could be done cheaper locally, they should arrange to carry out the duties themselves. Further, the Inchcape Committee recommended that the three large troopships should be scrapped and all trooping carried out under contract, which would have left the Marine with only the Survey Department and the Bombay Dockyard.

Happily for the Service, however, the Government of India in 1925 appointed a Departmental Committee under the Chairmanship of General Lord Rawlinson, in his capacity of Minister of Defence and Member of Council in charge of the Marine Portfolio, to submit a scheme for the reorganisation of the Service as a combatant force.

This Committee recommended that the Service should be reorganised as a purely combatant Naval Service with the title of Royal Indian Navy, with a strength in the first instance of 4 armed sloops, 2 patrol vessels, 4 mine-sweeping trawlers, 2 surveying ships and a depot ship, the Service in the first instance to be commanded by a Rear-Admiral on the active list in the Royal Navy.

The scheme was accepted by the Indian and Home Governments, and the necessary Act to permit India to maintain a Navy was passed through both Houses of Parliament.

To effect the change in the title it was necessary to draw up a new Indian Naval Discipline Act, and this had to be passed in the Legislative Assembly and Council of State in India. The Bill was introduced in February, 1928, when the Government were defeated by one vote, the defeat being caused, not by the fact that the people of India did not want an Indian Navy, but because in some cases members did not consider that the Legislature had been properly and fully consulted beforehand. Other members voted against the Bill on principle, as they considered that both Army and Navy should be directly controlled by the Legislature, while the extremists voted against it because they were prepared to vote against any Government Bill which might be introduced.

The blow to the Service was a heavy one, as it was feared that the defeat might put an end to the reorganisation. The Government, however, decided that the reorganisation should continue on the original lines, except that the title could not be altered, and that the service would have to use the old Discipline Act, a perfectly correct "Articles of War" based on the Naval Discipline Acts. To this organisation I have never heard any Indian, politician or otherwise, advance any objection, and all of my Indian friends are pleased and proud of the change, which among other things includes the admission of Indians to commissioned rank in the proportion of one to three.

In the present year, on the recommendation of the Admiralty, His Majesty the King has been pleased to approve of the change in uniform of officers to that of the Royal Navy, with the exception of the buttons of the R.I.M., which bear the Star of India as a distinctive mark, and also of the flying in R.I.M. ships of the White Pennant and the White Ensign of the Royal Navy, the greatest honour which can be conferred upon any sea service. The White Ensign was hoisted for the first time on Armistice Day, November 11th, 1928.

The Indian Marine is now reorganised as one of the fighting forces of the Empire under the command of a Rear-Admiral on the active list of the Royal Navy. Its duties are purely naval and its personnel are trained for war, and I would like here to quote from the report of a captain in the Royal Navy on board whose ship the R.I.M. ratings attached to the Shanghai Defence Force were permitted to continue their training. He wrote: "Their naturally smart and alert bearing was a distinct asset in field training and gun drill, and not the least benefit of the course was the example set by the R.I.M. ratings in keenness and zeal to all those who saw them at work. The relations between the instructors and the class were excellent from the first, and were soon supported by strong mutual respect. It is clear that the R.I.M. personnel represent most skilled fighting material."

It is probable that in the future the R.I.M. will be chiefly employed for the defence of the Indian seas, coasts and harbours, and I think that we may rest assured that the Service will worthily uphold the great traditions of its past history and maintain an honourable position among the Navies of this great Empire.

DISCUSSION.

MAJOR GENERAL SIR PERCY COX, G.C.M.G., G.C.I.E., K.S.C.I., remarked that he was delighted to be present at any gathering which brought together the members of the old Service which he knew so well. He had the very happiest memories of his association with the Indian Marine, and he could only think of them with the deepest obligation and affection. Altogether, including the War, he had been associated with the Service for thirty years. Most of those present knew the recent history of the Indian Marine and did not need him to tell it, but he would like to go back to the many inherited memories which he had from the gallant old officers of the Service whose names were still to be conjured with, and which were still to be seen on the Admiralty charts. The Indian Marine not only served on the sea, but also, in their association with the Political Service, had come to know so much about land politics that several of them had been drafted into the Political Service—for instance, Commander Felix Jones, who had been for many years Resident at Baghdad, and Lieutenant Bruce, who had been Resident at Bushire. Personally, he could remember, as Resident of Bushire, having a store-room full of very old records of the Service from the times of the East India Company, and some of those records had afforded him very delightful reading. In the days of Lieutenant Bruce, His Majesty's Minister at Teheran, who depended on Bushire for his mails and communications with India, had written to Lieutenant Bruce saying that he was expecting some guests, and that his cellar had run low and that he would be most grateful if Bruce could help him out. That was in the days when it took about a month's travel from Bushire to Teheran. Lieutenant Bruce had written back most apologetically, saying that unfortunately the occasion found his own cellar also very low, and that the best he could do was to send 130 dozen of beer. Another old record which he could remember took the form of a long correspondence which had taken place in the time when the *Hugh Lindsay* had been on duty in Bushire, and which had had to do with a feud between the officers of the *Hugh Lindsay* and the officers of the Residency for the favours of an Italian theatrical company who had been at Bushire for a few days. Perhaps, also, some of those present would remember the story of Mr. and Mrs. Bagstock, which, unfortunately, would not bear repeating at that meeting! He had been most interested in the lecture, and it had been a very great pleasure to him to be present.

ADMIRAL SIR DRURY ST. A. WAKE, K.C.I.E., C.B., said his experience of the Indian Marine had been mostly during the War when he had been in charge of the Persian Gulf from 1915 to 1918, when several ships of the Indian Marine had been attached to his Flag, the officers doing the same duty in every way as his own officers. In that connection it had been rather hard lines on the officers of the Indian Marine, and he had written home and had told the Admiralty so. They had done the same work and had to stay out a considerably longer time than his own officers, but drew only half the pay. One rule which he had had to make out there for his own officers and men was that they were sent home after two years, as otherwise they died or had to be invalided out of the Service. The Admiralty had agreed with him in that, and had relieved his men every two years. But he had had Indian Marine officers under him who had been out there for five years, or even more. That was very bad for them in many ways, both morally and physically, and he was thankful to say that the Admiralty had altered that state of things. He hoped he had been the means, by the correspondence that he had had with the Admiralty, of improving the position of those officers very considerably, who, while they had been under him, had served him very loyally and well, and whose knowledge

of the Station had been of the greatest possible help to him. He had recommended several of them for gunnery ratings in the Grand Fleet, and he believed they had succeeded in getting them. They had learned gunnery under him to a great extent, and had taken the keenest interest in it. They were just as good as his own officers, and he had been extremely sorry to say goodbye to them. If any of those present desired to get a very good knowledge of the sort of work which the Royal Indian Marine had had to contend with in the Persian Gulf he would advise them to read Sir Arnold Wilson's book on the subject, which gave a truly marvellous account of the Persian Gulf and the operations which had taken place there, not only in modern but in ancient times. Personally, he had the very greatest respect for the Royal Indian Marine.

LIEUT.-COL. SIR ARNOLD T. WILSON, K.C.I.E., C.M.G., C.S.I., D.S.O., said he knew he could say on behalf of the members of the junior ranks in the Royal Indian Marine that they more than reciprocated the kindly feelings which Admiral Sir Drury Wake had expressed. He had heard a great deal on the subject from Sir Drury, and he was perfectly certain that if Admiral Wake's despatches to the Admiralty had been as vivid as his conversations with his friends on that and allied subjects, they must certainly have carried conviction!

Perhaps he might be pardoned for saying that he regretted the absence from the lecture of any mention of the famous names of Constable and Stife—names he had been accustomed to see on every chart as a sort of proof that it was a good chart. Nor had the lecturer quite done justice, he thought, to the extraordinary variety of work which had been done in earlier years by different members of the Indian Marine. Captain Moresby had given his name to the present Capital of New Guinea. Welstead had written a book on the archæology of Southern Arabia which had not yet been replaced, and Assistant Surgeon Carter had written a monograph on the geology of Southern Arabia which had only been replaced by a more detailed study during the last twelve months. The lecturer had mentioned natural history as being a subject which had been undertaken pretty thoroughly by the naturalists attached to the Service, some of whose monographs were very valuable indeed. He himself had compiled a bibliography of some sixty items concerning the Persian Gulf alone in the region of natural history which were owed primarily to the Royal Indian Marine Natural History Service. With regard to the War in Mesopotamia, the Royal Indian Marine had been first in the field, and for nearly eighteen months had been responsible for the Marine transport and river transport under enormous difficulties. He need not enter into a *post mortem* of the difficulties met with in Mesopotamia in those days, but he would like to point out one thing of which the lecturer might possibly be unaware. The number of Indian Marine officers who were on duty in Mesopotamia had been about 30 at the end of 1915. The new water transport had then been introduced from the War Office, and the numbers had gone up to approximately 800 officers and 10,000 or 12,000 other ranks. At the Armistice he had made enquiries as to what had happened to the original 30 officers of the Royal Indian Marine, and he found that of the 30, 20 were still holding either their original positions or more important ones, and that nearly half the posts of importance in the I.W.T. in Mesopotamia were held by the officers of the Indian Marine. That was perhaps the best possible tribute to their efficiency. In addition to all the multitudinous duties to which the lecturer had referred as falling to the Indian Marine to perform, there were lighthouse services and the management of ports. Despite the fact that there were almost infinite opportunities for being subjected to unfavourable criticism, there were few branches of the public

services in India which had been less criticised, so far as technical efficiency was concerned, than the Royal Indian Marine. He was confident from his knowledge of them, and of the general attitude towards them of the instructed public, that they were opening a fresh and even more distinguished chapter in their long history.

MR. C. H. BOMPAS, C.S.I., said he was almost ashamed to take part in the discussion, as almost all he knew about the Royal Indian Marine was what he had just learned from the lecture. He remembered reading an account of the survey of the rivers of the Sundarbans conducted by officers of the Indian Marine Service, from which it appeared that it had been almost impossible in those days to set up a theodolite without having it knocked down by a man-eating tiger. He supposed everyone had been more or less interested in the proposal, which was now taking shape, of India having a navy of its own, and one was interested to hear from the lecturer that, as a result of that, the service would be thrown open to the Indians of other races than those on the Bombay side. Most civilians' idea of the Indian sailor was the Lascar on the P. & O. and B.I. boats. They mostly came from Bengal, and he could imagine that they would show in the future that they were as good sailors and fighters as the Bombay men. Personally, he had had to administer relief funds during the War, part of which had been devoted to making grants to Lascars whose ships had been torpedoed. The deaths of Lascars on torpedoed ships had run into very large numbers, but it was true to say that there had not been a single case of a Lascar who had been saved from a torpedoed ship who had not immediately volunteered for another voyage; and he knew many whose ships had been torpedoed more than once.

CAPTAIN H. T. A. BOSANQUET, R.N., remarked that it was impossible in a general survey of the history of the Indian Marine for the lecturer to mention any details of the manning of the Service, but personally he would like to recall the services rendered by the Marine Society of London during the years 1757-1861. During the whole of that time the recruiting of the European Service had been carried out by the Marine Society from the boys from their training ship; and in those years they had sent altogether to the Bombay Marine and Indian Navy 3,760 boys. The Marine Society still carried on its work at Greenhithe, but of course its connection with the Indian Navy had been severed since 1861. It seemed to him that it would be very desirable if, under the re-organisation scheme, boys from the *Warspite* at Greenhithe could in some way be sent out to India to form the European crews of the existing Indian Navy. He hoped that point might be considered.

THE CHAIRMAN said it had long been a desire of his before he had gone to India that the Indian Navy should get back on to a combatant basis, and that the old Indian Navy should once more be revived. He had read Captain Low's "History of the Indian Navy," in which were described all the past exploits of the Indian Marine, to some of which Sir Edward Headlam had referred that afternoon in his interesting lecture. A good many of his (the Chairman's) ideas had been got from an old officer, now dead, who had himself been a great historian and a most enthusiastic supporter of the revival of the Indian Navy—an officer whose name he hoped the Indian Navy would never forget, namely, that of Admiral Sir Cyprian Bridge. Sir Cyprian Bridge, on every occasion that was open to him, had always done all he could to revive that old Force. Sir Cyprian had talked to him a good deal about it, and it was what he had told him, and what he had been induced by him to read, that had brought him first into touch with the subject, and that

had led him to interest himself in it. Before Lord Rawlinson had started investigating the question of the Indian Navy, he himself had gone in to the matter to a certain extent, and he had taken the opportunity at Calcutta to speak to many of the officers of the Mercantile Marine about the whole subject of the Indian as a seaman; and it had been very pleasant to hear the very high tribute which all of those officers had paid to the Lascars and to the Indian seamen who had served under them. They had said that all that such men required was good leadership, and that if they got that they would follow one anywhere. The Indian Marine and the Indian Navy in the old days had consisted, as the lecturer had said, of small ships, and the crews had been better fitted to that kind of ship than to the larger ships which had now become such horrible complicated instruments as hardly to be ships at all. The Indian Marine would have a very wide scope for its duties; it would have as wide a scope in the future as it had had in the past. There were many occasions on which there had been no British ship flying the Royal Ensign in Indian waters at all; in fact, the first appearance of a British Squadron in Indian waters had been in 1746. From 1612-1746 piracy had been kept down in the Indian waters entirely by the efforts of what was now called the Indian Marine, and also after the British Squadron had returned home the Indian Marine had once again taken on the whole of the work of the defence of the trade of India, and he had no doubt that if unfortunately another war were to come it would be found that the Indian Navy would again have those duties put upon it and would carry them out as efficiently as it had done in the past. It was a very encouraging thing, in talking to a large number of Indian gentlemen in Delhi and Calcutta, to hear them express such a cordial desire that there should be a fighting navy belonging to India. The bill for such had been turned down in a purely factious spirit. The great bulk of people, he thought, were strongly in favour of it; and although the title of the Royal Indian Marine remained at the moment he believed that it would not be many years hence when it would be called the Royal Indian Navy, and he for one looked forward very much to that day.

He asked the audience to accord a very hearty vote of thanks to Sir Edward Headlam for his very interesting lecture.

The vote of thanks having been carried unanimously, the meeting terminated.

CORRESPONDENCE.

MUSEUMS AND EDUCATION.

The paper by Sir Henry A. Miers on "Museums and Education" serves to show the increasing importance of museums to education, both to the student and to those who have passed the student age.

The change in attitude towards museums, which are no longer regarded as depositories for relics, but as living, vital organs of the community which they serve, is becoming general; and what is being done in England along these lines is being carried out throughout the whole world.

The Franklin Institute of the State of Pennsylvania, in combination with the Poor Richard Club, has recently formed a Trust known as "Benjamin Franklin Memorial Incorporated," whose purpose is to build a museum which is to be used for the promotion of science and the mechanic arts. Any of your readers, who may be interested to have complete details of this plan, I would refer to an article by Mr.