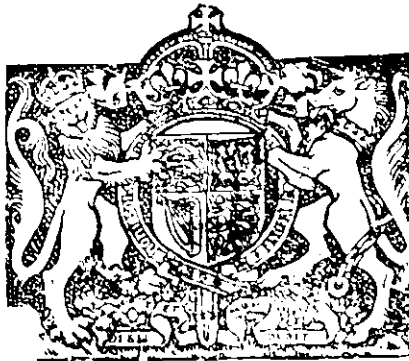


PROSPECTUS  
OF  
THE INDIAN MERCANTILE  
MARINE TRAINING SHIP  
“ DUFFERIN ”



BOMBAY HARBOUR



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1138

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## IMPORTANT.

### MEMORANDUM. EXECUTIVE COURSE.

**Eye-sight.**—The attention of Parents and Guardians of Candidates for the Executive Cadetships to the “Dufferin” is invited to pages 14 and 15 of the Prospectus regarding Medical Fitness and Eye-sight.

“In after life every candidate for a certificate of competency is required to have normal vision (Snellen’s Standard) using both eyes or at candidate’s option, either eye separately. It is important that every person who contemplates for entry to the “Dufferin” for training should realise that ability to reach this standard at the time of examination does not guarantee that he will be able to pass when he is ready to go to sea and again when he presents himself for his professional examinations in later years or that he will be able to maintain the necessary standard of visual acuteness throughout his working life.

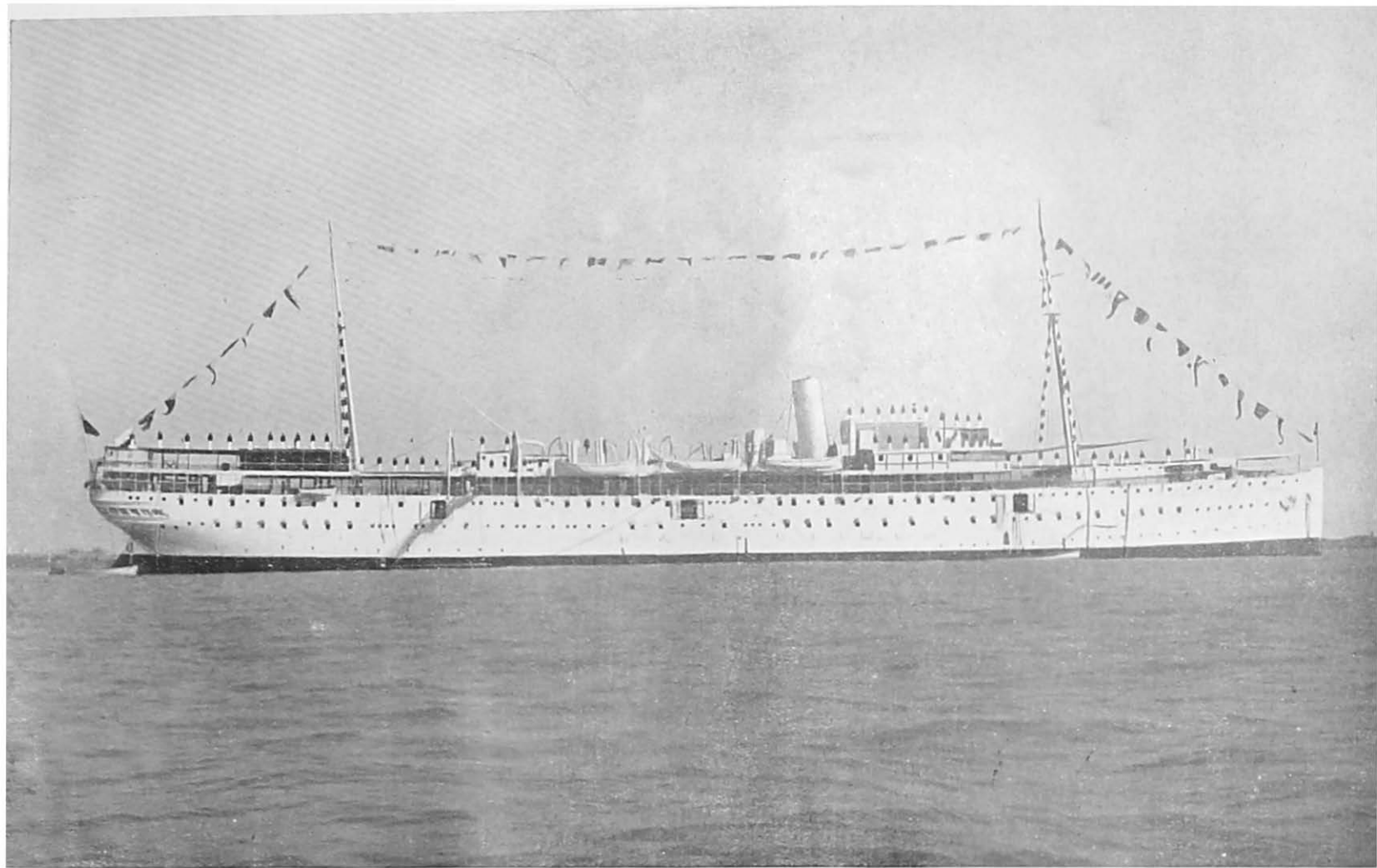
A large number of persons have eyes that, though they are quite healthy, are not optically correct owing to the presence of some error of refraction. The commonest of such errors of refraction is called **HYPERMETROPIA**. In youth hypermetropia is often latent, and does not prevent the person from seeing perfectly at a long distance; but in middle life and later it becomes manifest and glasses are needed for clear vision of distant objects. The age at which this defect becomes manifest depends upon the degrees of hypermetropia, and this varies widely in different persons. Hypermetropia, and other errors of refraction can be efficiently estimated only by those who have been properly trained in the examination of the eye.

A serious falling off of visual acuteness for distance, in after life, is incompatible with the continuance of efficiency at sea. In order, therefore, to guard against the possibility of entering a profession for which after a few years he may prove to be physically unfit, *it is very desirable that every boy before coming for training should undergo a thorough examination of his eyesight by an ophthalmic surgeon.* By this means he will be able to ascertain what, if any, degree of hypermetropia or other imperfection of the eyes he has and what is the probability of his being able to maintain the necessary degree of visual acuteness throughout his working life.”

2. The Parents and Guardians, in the boy’s own interest, should have the eyesight of the boy thoroughly examined. If he is successful and comes to Bombay for Selection, he has to undergo the Snellen’s Test and one for Colour Vision but the passing of such test is no guarantee that his eyesight is such as to remain good in after life.

3. To avoid disappointment, candidates living within reach of Bombay, Calcutta, Rangoon and Madras are advised to apply to the Principal Officer, Mercantile Marine Department of the Port concerned for examination before coming to Bombay for selection.

4. This, however, will not necessarily absolve them from a further examination on arrival in Bombay.



I. M. M. T. S. "Dufferin". Cadets Manning Ship.

**EXTRACT FROM THE EVENING NEWS OF INDIA, BOMBAY,  
MONDAY DECEMBER 12, 1927.**

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**VICEROY INSPECTS TRAINING SHIP "DUFFERIN".**

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**Advice to Mercantile Marine Cadets.**

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A splendid send-off to the new scheme for training Indian youths for a career in the Mercantile Marine was given this morning, when His Excellency the Viceroy paid a visit to the DUFFERIN, which has been converted into a training ship and lies at anchor off Mazgaon Pier. This engagement was the first in His Excellency's programme to-day and that he found it extremely interesting was proved by his lengthy stay on the ship and careful examination of the arrangements made for the boys' education.

2. The scheme was launched on December 1, when 30 cadets specially selected from all parts of India joined the DUFFERIN. Since then wonders have been worked. The boys have been fitted out in smart uniforms, and just under a fortnight's drill has given them a smartness which has to be seen to be believed.

**Guard of Honour.**

3. So it was seemingly no raw recruits whom His Excellency saw lined up on the quarter deck as the trim Indian Marine launch, DIAMOND, drew up at the gangway of the DUFFERIN this morning. His Excellency accompanied by Captain Headlam, Director of R. I. M., embarked on the DIAMOND at the "Gateway of India" at 10-30, after driving through well-lined streets from Government House and inspecting a Guard of Honour of Royal Indian Marine which was drawn up at the Gateway. Members of the Governing Body had preceded His Excellency in another launch, and were awaiting him when he boarded the DUFFERIN, which was "dressed" for the occasion.

**Arrival on Board.**

4. His Excellency was received by the Captain Superintendent Digby-Beste, who presented to him the following governors:—Sir Chimanlal Harilal Setalvad, Sir Purshotamdas Thakurdas, Mr. F. P. B. Lory (Director of Public Instruction), Mr. Kaikobad Cowasjee Dinshaw, Mr. D. J. MacGillivray, Mr. M. A. Master and Mr. Narotam Morarjee. The officers of the ship were then presented, after which His Excellency inspected the boys, pausing to say a few words to every one of them. Then a tour was made of the ship and when this was concluded, the boys—thirty in number, by the way—fell in again and His Excellency spoke a few encouraging and well chosen words.

### Advice to the Boys.

5. The Viceroy said he was very glad of an opportunity of addressing the boys, because they were the pioneers in an adventure which he hoped with the help of those responsible for guiding it, in their different capacities, was going to be a great contribution towards enabling the sons of India to become responsible in an increasing degree in the Merchant Service and the Mercantile Marine that served India and the world. He had no doubt that they already had had long enough to realise that the profession that they were making up their minds to try and follow was a difficult one, and would require much study before they were competent. They would learn more and more that everything worth doing in life was difficult, and that the easier things would not bring the same reward. They must always keep in their minds the thought that they were doing pioneer work and that they were taking up a career which hundreds of sons of India might follow in later. Just as the foundation of a house was the most important part so the foundation of a new scheme was its most important part, and the cadets he was addressing were responsible for this.

### A Ship with Great Traditions.

6. The DUFFERIN was a ship with great traditions and they had to follow up these with traditions of a different kind. They must see that these new traditions grew up on sound lines and were built on firm foundations. He did not want to give them a lecture, but he did want to tell them that a great many people over India and outside were watching the DUFFERIN experiment. That was the reason why he insisted on making time to come and see how they were getting on. As long as he was in India, His Excellency concluded, he would always watch and hear with interest what they were doing. They had his warmest wishes for success, which lay mainly in their own hands, for success in life depended on the individual.

7. When His Excellency sped away in the DIAMOND from the DUFFERIN the cadets manned ship and gave him three hearty cheers. His Excellency waved his "topee" in acknowledgment.

8. While His Excellency was on board some hundreds of scouts who, after attending Sunday's jamboree, were being given a cruise round Bombay Harbour, passed the DUFFERIN and the ship's sirens were sounded and cheers given in salute.



Staff, 1938.

# INDIAN MERCANTILE MARINE TRAINING SHIP "DUFFERIN".

(GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE.)

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## Governing Body.

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R.I.N., J.P. (*On leave prior to retirement*).  
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*Second Officer*.—

Lt. M. F. HARVEY, R.N.R.

*Third Officer*.—

Mr. E. JOHN JACOB (*Officiating*).

#### *Engineering.*

*Chief Engineer*.—

Mr. J. S. H. STEVENSON, Extra Chief  
Engineer (B. O. T.) Motor En-  
dorsement, M. I. Mar. E.

*Second Engineer*.—

Mr. J. KNOX BROWN, B.Sc. (Eng.),  
Glasgow, M. I. Mar. E.



*Medical.*

*Medical Officer*—Assistant Surgeon E. WILKINSON, I.M.D.

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*Physical and Boxing Instructor and Store-Keeper*.—Mr. V. D. KULKARNI, B.Sc.

1. **Aims and objects of the "Dufferin".**—To obtain suitable candidates from among British Indian Subjects or Subjects of a Ruling Prince in India for the Indian Mercantile Marine and to train these in such a way that they may with confidence be expected to follow the sea as a career, and be fit in all respects to hold their own as good and efficient officers.

To attain this result, it is necessary :—

- (i) To bring each cadet up to an educational standard which will enable him to continue his own education, at sea in the case of Executive cadets, ashore and afloat in the case of Engineer cadets, and so eventually to pass the Government Examinations for Certificates of Competency as Masters and Mates or Engineers in the Mercantile Marine.
- (ii) To bring each cadet to an educational standard so that should he elect not to follow the sea, his education on board will stand him in good stead, whatever profession he desires to follow. (See paragraph on General Education.)
- (iii) To give all cadets a training to fit them to take their place as Officers and face with fortitude and endurance the hardships inseparable from life at sea, such an end to be attained by the

actual life on board the ship, by manual work, by strict discipline and by causing them, as far as possible, to take responsibility in minor matters whilst yet boys.

- (iv) To give all cadets a social training which will enable them to move in confidence in any society without embarrassment either to themselves or to others.
- (v) Through the supervision and example of a carefully selected staff, to imbue all cadets with a sense of loyalty, patriotism, manliness, devotion to duty and self-sacrificing spirit of service, together with a healthiness of mind and body such as will render them true and useful servants and citizens of India and the Empire.

2. **Discipline.**—Very strict discipline is maintained on board the ship, as the mind of every boy must be imbued with the idea that the sea is an arduous and trying life, involving great responsibilities, and is devoid of many of the comforts and amenities of a life on shore. This idea must be cheerfully accepted by the boys if they are to become efficient and capable sea officers. Cadets will be required to live on the training ship, and will be subject to the discipline of the ship's officers and of the teaching staff.

3. **Qualifications necessary for an Executive Officer in the Mercantile Marine.**—(i) To qualify as a ship's officer it is necessary to obtain certificates of competency under the regulations in force in India relating to the examinations of Masters and Mates in the Mercantile Marine. Certificates for foreign-going steamships are granted to second Mates at the minimum age of 20 after a minimum *sea service* of four years in foreign-going ships or six years in home-trade ships.

(ii) After passing for a second Mate, it is necessary to serve a further period at sea as an officer in order to pass for Mate and then for Master. The examination for Master may be taken at the minimum age of 23 years after a minimum sea service of 6 years in foreign-going ships or 9 years in home-trade ships. Certain portions of such sea service must be as "officer-in-charge" of a watch in accordance with the detailed rules in force.

(iii) On obtaining a Master's certificate, an Officer is qualified to take command of a vessel in the Mercantile Marine. Examinations for certificates of competency are held at the larger sea ports in the United Kingdom, at Bombay and Calcutta in India, and also at Singapore and Hong Kong.

(iv) To qualify to sit for the examination of second Mate, four years' sea time is necessary. The possession of a Passing Out Certificate in the Training Ship DUFFERIN will be recognised by the Board of Trade as equivalent to one year's sea service, thus reducing to THREE years the preliminary time at sea prior to being able to sit for the first certificate of competency. At the same time the training on the DUFFERIN ensures a first class education, a grounding in the theoretical side of the profession and a sea sense which will assist the boy to determine whether a career at sea is the profession he intends to follow.

4. **Service as an Apprentice after leaving the "Dufferin".**—The three years are usually spent as an apprentice, during which time the boy learns the practical side of his profession.

5. **Pay and Prospects of an Executive Officer in the Mercantile Marine.**—(i) Most Shipping Companies require a premium prior to signing an Indenture for three years' apprenticeship. Such a premium may amount to any sum such as Rs. 700 and in some cases is refunded on satisfactory completion of the period of apprenticeship. Cost of uniform and equipment necessary prior to going to sea approximates Rs. 500.

(ii) During the apprenticeship, the boys receive free board and lodging on their ships and in many companies they receive pay as well. Such pay varies from about Rs. 10 to Rs. 35 per mensem depending on the service the apprentice has had and the rules of the particular company.

(iii) After completing his term of service as an apprentice and passing for a second mate's certificate, the pay of an officer at the present time is anywhere between, approximately, Rs. 120 per mensem as a Junior Officer just joining a Shipping Company, steadily rising step by step as he receives promotion through the ranks of fourth, third and second mate and finally Chief Officer. The pay of a Senior Chief Officer may be written down as between Rs. 300 to Rs. 355 per mensem and it may take anywhere between six and in some cases 15 years before attaining the rank of Chief Officer. When command is attained, the pay is better and varies according to the length of service, class of ship, and rules of the particular Shipping Company.

(iv) The usual pay of a Master is between Rs. 480 and Rs. 700 per mensem and it takes in most cases between 15 and 20 years to attain command.

(v) Some Companies have a provident fund or pension rules.

(vi) In addition to the usual appointments as Ship's Officers, there are appointments under the various Port Trusts and Port Commissioners in India which are open to those qualified for a Mercantile Career. For appointments as Pilots and Harbour Masters at Bombay, Rangoon, Madras and Karachi and also as Harbour Masters at Calcutta, sea-faring experience is necessary.

(vii) In the appointment to the Bengal Pilot Service, preference will be given to candidates who have passed through the DUFFERIN in accordance with Rules and Regulations for that Service, published in Appendix VI.

(viii) There are also pilot services at Chittagong, Bassein, Aden, Akyab and Moulmein open to those with Masters' certificates for foreign-going ships.

6. **Qualifications necessary for an Engineer Officer in the Mercantile Marine.**—(i) To qualify as a Ship's Engineer it is necessary to obtain Certificates of Competency under the regulations in force in India relating to the Examination of Engineers in the Mercantile Marine. A candidate for a Second Class Engineer's Certificate is eligible to sit for the examination at a minimum age of 21 years, on completion of four years' apprenticeship in an approved Workshop ashore plus eighteen months' service as Engineer on regular watch on the main propelling machinery of a foreign-going vessel of a certain minimum nominal horse-power.



**Engineer Cadets' Workshop.**

(ii) After passing for Second Class Engineer it is necessary to serve a further period at sea as an Engineer in a responsible capacity in order to sit for First Class Engineers Examination.

(iii) Certificates of Competency are designated "ordinary" or "motor" according to whether they relate to service in steamships or motorships, and entitle the holders to go to sea in the grades certified, but an ordinary Certificate is not available for service in motorships unless endorsed for that purpose and *vice versa*.

(iv) Examinations for Certificates of Competency are held at the larger sea ports of the United Kingdom, at Bombay and Calcutta in India, and also at Singapore and Hong Kong.

(v) The Board of Trade and the Government of India have recognised the "Dufferin" Final Passing Out Certificate granted on satisfactory completion of three years course as an Engineer Cadet in the Training Ship as equivalent to ONE year of the workshop service prescribed in their "Regulations relating to the Examination of Engineers in the Mercantile Marine", thus reducing the preliminary training in a workshop ashore necessary prior to proceeding to sea as a Junior Engineer Officer from four to THREE years in the case of the "Dufferin" Engineer Cadets.

7. **Service as an Apprentice after leaving the "Dufferin".**—Approved workshops are available principally in Bombay, Calcutta, Karachi and Madras for the workshop training of apprentices. The work of an apprentice is arduous and the pay given by the workshops is small. To enable the apprentices to retain their self-respect and ambition and to encourage the element of competition among the cadets during their course on the "Dufferin" the Government of India are granting fifteen scholarships annually, each of the value of Rs. 50 per mensem and tenable for three years, on the results of the "Dufferin" Passing Out Examination.

8. **Pay and Prospects of an Engineer Officer.**—(i) The pay of a junior Engineer in the Mercantile Marine at the present time varies from Rs. 75 per mensem to Rs. 150 per mensem (according to the rules of the different Companies), rising step by step as he receives promotion through the various grades, the pay of a Chief Engineer being generally somewhat below that of a Master.

(ii) In addition to the usual appointments as Ship's Officers there are other appointments as Engineers, Surveyors, Consulting Engineers, Dockyard Managers, Engineers in charge of Power Stations and factories, etc. Recruitment for these posts is generally from the Mercantile Marine and the salaries are good.

#### **Facilities for apprenticeship and employment at Sea.**

9. (a) **Executive.**—(i) The Government of India have arranged with the principal shipping companies operating on the coasts of India to grant facilities to "Dufferin" Cadets to proceed to sea as apprentices as vacancies occur. Many of these have also agreed to accept as Officers in their Companies, such apprentices who have passed through the "Dufferin", completed their apprenticeship at sea with satisfaction and obtained the necessary certificates of competency.

(ii) Engagement of apprentices and the employment of officers in after life is, however, dependent on many factors, such as conditions of trade, number of vacancies, and the rules and regulations of each individual company.

(b) Engineering.—(i) The Government of India are also assured that facilities for training as apprentices are available at the major Marine Workshops in Karachi, Bombay, Calcutta and Rangoon, and further that the principal shipping companies operating on the coasts of India will accept *ex-*“Dufferin” Cadets who have proved themselves satisfactory, as Junior uncertified Engineers and later as certified Engineer Officers.

(ii) Facilities for placing apprentices in workshops and employment at sea as certified or uncertified Marine Engineers, as in the case of the Executive Branch, are dependent on the conditions of trade, number of vacancies and the rules and regulations of each individual company.

### General Education.

10. (i) It is realized, however, that not all who join the “Dufferin” may be able to proceed to sea, and indeed may not desire to. For this reason, and to allow for an element of competition in the Training Ship, in addition to vocational training, the Curriculum has been so designed that it combines the requirements of the sea with those of the Universities in India upto Matriculation standard and so provides a good Public School education, a suitable preliminary to a University career or to employment in other walks of life, and arrangements have been made by which the “Dufferin” Passing Out Certificate has been recognised by the Government of India as equivalent to the Matriculation Examination for purposes of admission to the Public Services in India and by the Universities as equivalent to Matriculation.

(ii) Instruction on the Training Ship is given in English, Geography, History, Arithmetic, Algebra, Geometry, Trigonometry, Science and Mechanics. For vocational subjects, the Executive Cadets will take Navigation and Nautical Astronomy, Meteorology, Elementary Engineering, Seamanship and Magnetism, and the Engineering Cadets will take Practical Mathematics, Engineering Knowledge, Mechanical Drawing, Manual (Workshop Practice) and Elementary Seamanship.

(iii) The above subjects will be included in the Final Passing Out Examination.

(iv) The Syndicates of the Universities of Aligarh, Andhra, Annamalai, Benares, Bombay, Delhi, Madras, Mysore, Nagpur, Osmania, Punjab and Rangoon have recognised the “Dufferin” Final Passing Out Examination of both the Executive and the Engineering branches as equivalent to their matriculation and the High School examination on obtaining the requisite quota of marks subject to certain conditions.

(v) The University of Patna has granted permission to an Executive or Engineering cadet of the “Dufferin” who passes the Final examination of the Ship to join the First Year Class of a College affiliated to that University provided that he satisfies the conditions of regulations 8 (4) of Chapter XXVIII of the Patna University Regulations.

(vi) The Syndicate of the University of Calcutta has sanctioned the admission of a student who has passed the final Examination either Executive or Engineering on the "Dufferin" into the First Year Class of a College affiliated to that University provided the candidate passes in one of the vernaculars mentioned in section 9 (4) of Chapter XXX of the Regulations before proceeding to the Intermediate examination of that University.

(vii) The Board of High School and Intermediate Education, United Provinces, Allahabad, and the Board of Intermediate and Secondary Education, Dacca, have also granted similar recognition to the "Dufferin" Final Passing Out Examination both Executive and Engineering as equivalent to their High School Examinations for the purpose of enabling candidates to enter upon the course of studies prescribed for the Intermediate Examination.

11. **Length of Course in DUFFERIN.**—(i) The full course in the training ship lasts for 3 years. Each year is divided into 2 terms.

First term January 10th to May 31st.

Second term September 1st to December 10th.

(ii) The actual date of the commencement and the completion of each term is liable to slight alteration, depending on the day of the week.

Classes.—The classes are named as follows :—

Junior, 1st year.

Remove, 2nd year.

Nautical, 3rd year.

(iii) Cadets who are found to be very backward may be required to remain an extra term in any particular class, but in no case will the total training be reduced to less than three years.

12. **Term Report.**—Progress reports will be forwarded to parents.

13. **Holidays.**—(i) The Christmas Holidays are from December 11th to January 9th.

(ii) Ten days holidays will be granted at Easter.

(iii) The Long Leave is from June 1st to August 31st.

(iv) Cadets will not be allowed to remain on the Training ship during the Long Leave and parents must make their own arrangements for the journey to and from Bombay.

(v) Up-country Cadets may be allowed to stay on board the ship during Christmas holidays, on payment of one month's fees and extras.

(vi) Cadets residing in Bombay or whose parents care to make arrangements for their sons to proceed to the homes of friends, may leave the ship during the 10 days holidays at Easter, but no refund of fees will be made for this period. A camp is usually arranged for these 10 days and costs the parents about Rs. 10.

14. **Fees.**—(i) The fees are Rs. 50 per mensem, payable in advance for each term.

(ii) The first term's fees payable before the 10th January, amount to Rs. 225, the second term's fees payable before 1st September, amount to Rs. 175.

(iii) These fees include board, lodging, tuition, and medical attendance as below :—

- (1) Any sickness or injury treated by Ship's Medical Officer on board will be free of hospital cost.
- (2) When in case of necessity or emergency the cadets in their own interest are sent ashore for hospital treatment the charges levied by the hospitals will be met to the extent of Re. 1/10 per day by Government during term time only and any balance exceeding that amount will be borne by the parents or guardians.
- (3) Full hospital charges will be levied on the Parents or Guardians should a cadet be detained in hospital during vacation time.
- (4) The balance of charges under para. (2) usually amount to Re. 1/6 per day at present.
- (5) The full charges under para. (3) at present amount to Rs. 3 per day.
- (6) If, during term time, any cadet is absent for a period of 30 consecutive days or more due to illness or injury which is caused through no fault of his own, and for the treatment of which Government bears no expense, a refund, on account of boarding charges only, will be granted at the rate of Re. 1 (Rupee one) per day. In the case of cadets holding Government of India Scholarships the amount of refund will be at the rate of annas eight per day instead of Re 1-0-0 per day.

15. Extras.—(i) Parents are required to forward to the Captain-Superintendent at the commencement of each term, on receipt of an account, a sum calculated at the rate of Rs. 10 per month. This charge is for cadets' necessary personal expenses, *e.g.*,

Pocket money at the rate of Re. 1 per week.

Laundry at Rs. 3/8 per month (Approximately).

Use of textbooks and stationery at Rs. 2 per month

(ii) Urgent necessary expenditure will be met and charged to the parents in the account but ordinary replacements will be ordered on the Cadet's behalf and the bill sent to the parents direct. (*See foot-note on Appendix VII—Cadets Equipment.*)

(iii) There is no objection to the Cadet receiving extra pocket money in moderation but in such cases it is advisable that the money be sent direct to the Captain-Superintendent, who will credit it to the boy's account and issue it to the Cadet at his discretion.

(iv) A fee of ten rupees will be charged for entry to the qualifying examination. If they are successful in the examination and are invited for selection, parents will have to send their sons to Bombay to appear before the Selection Board at their cost. *See conditions of entry.*





Types of Uniforms.

### Concession on Railways.

16. (i) Cadets in the DUFFERIN have been granted the concession of being able to travel 1st class on payment of 2nd class fare or 2nd class on payment of half second class fare on production of a certificate signed by the Captain-Superintendent, when travelling to and from their homes and ship at the end and beginning of the terms.

(ii) This concession is available only to Cadets actually in training, and is not applicable to candidates journeying to and from Bombay for interviews.

(iii) This concession has been granted in all Railways except :—

- (1) Darjeeling-Himayalan.
- (2) Dehri-Rohtas Light.
- (3) Gondal.
- (4) Meleod & Coy.'s Light.
- (5) Udaipur-Chitorgarh.

17. Remittances.—(i) Parents and guardians are requested to send the remittances, as far as possible, by crossed cheques. When money is sent in Notes, the cover should be invariably insured and registered. A letter stating the object for which the amount is sent must accompany all remittances.

(ii) When money is sent by Money Order great care must be taken to insert the object for which the money is sent in the SMALL COMMUNICATION COUPON at the bottom of the M. O. form.

(iii) The cadet's Name and Number must be invariably stated in all the above communications.

18. Uniform.—(i) Cadets on joining the Training Ship must be supplied with the equipment as laid down in Appendix VII.

(ii) The list is not exhaustive and is issued as a guide, and represents the minimum uniform, clothes and equipment necessary.

(iii) All clothes and kit must be legibly marked with the number of the cadet.

(iv) In the interest of the parents and to secure uniformity, those articles in lists A and B will be provided at the parents' expense to the cadet on joining, by the Ship's authorities.

(v) Cadets will be obliged to wear uniform throughout the term.

(vi) Parents or guardians will be charged the exact cost of the uniform supplied.

(vii) A deposit of Rs. 145 will be charged in advance to cover the cost of equipment, *vide* lists A and B.

(viii) Parents are expected to see that a Cadet is provided with the minimum equipment. If during the boy's period of training, he is short of equipment the Captain-Superintendent reserves the right of purchasing the same through the Ship's Tailor on behalf of the Cadet, and all articles supplied by the Ship's Tailor are inspected before issue to the Cadet.

19. **Diet.**—All cadets on the Training Ship will be required to be members of a joint mess similar to those on ships in the Mercantile Marine. The dietary is on a liberal scale. Vegetarian diet is provided for vegetarians, but all food is cooked by the ship's cooks and partaken of in a common mess, no deviation from this rule being permitted except in the case of sickness.

20. **Sickness.**—The DUFFERIN is equipped with a hospital and an isolation ward and there is a resident Assistant Surgeon on board. In case of illness, the parents or guardians will be informed at once by telegram, should the cadet be otherwise than temporarily indisposed.

21. **Religious Instruction.**—The Cadets fall in separately according to their different denominations for prayer, twice a day; Mahommedan boys being allowed to say their own prayers at their own special times. Time is also given to various denominations for their own religious instruction, under Officers or Masters who profess the same religion.

22. **Physical Instruction and Games.**—(i) Great attention is paid to physical drill, which is practised every morning under competent instructors. Playing Fields have been provided ashore, which they visit at least four times a week, hockey, football and tennis being taught and played. Deck games such as Deck cricket, tennis, and hockey are also encouraged.

(ii) All cadets are taught boxing under competent supervision.

(iii) A gymnasium and indoor recreation room are provided.

23. **Work Shop.**—The Training Ship is equipped with an extensive Machine Shop and Fitting Shop, Forge, Carpenter's Shop, etc. Electric power is supplied by Semi Diesel Generators and Pneumatic Power from a Diesel Driven Air Compressor. The "Dufferin" main and auxiliary engines and boilers are *in situ* and although not used for propulsion purposes are available and in daily use for demonstration and the training of Cadets. There is also a well equipped Mechanics and Heat laboratory.

24. **Visitors and Shore Leave.**—(i) Parents, guardians and personal friends of the Cadets may visit them on board on one Sunday every month. A launch will leave the Mazgaon Pier at 3-00 P.M. and the Ship at 5-30 P.M. for the convenience of the visitors.

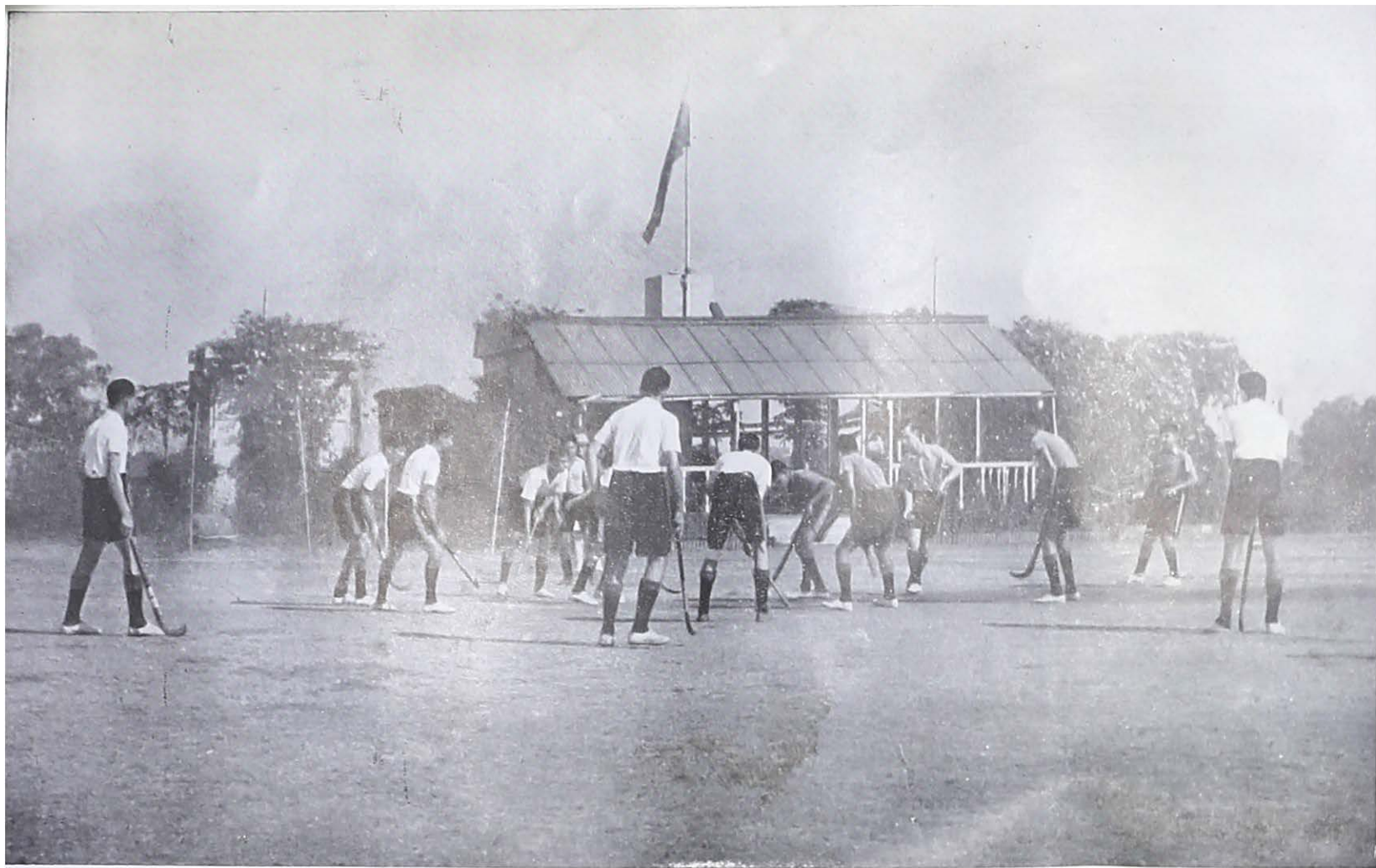
(ii) On another Sunday of each month, Cadets may visit their parents or guardians or any friend in Bombay *regarding whom the Captain-Superintendent has been notified*. Cadets will land at Mazgaon Pier at about 9-15 A.M. on these days and must return to the Pier at 8-00 P.M. sharp, or at the time previously notified.

(iii) Cadets must wear uniform when ashore.

(iv) When ashore, Cadets are on their honour not to visit any places or friends not approved of by their parents or guardians or by the friends of the parents in Bombay.

(v) Any abuse of shore leave by the Cadet or late arrival of the Cadet at the Pier, when returning from leave, will be severely dealt with.

25. **Notice to Leave.**—A term's notice to leave shall be given to the Captain-Superintendent of the intention to withdraw the Cadet, or in lieu a full term's fees will be charged.



**A Corner of the Playing Fields.**

26. **Correspondence.**—(i) All correspondence should be addressed to the *captain Superintendent*, and not by name.

The registered address of the ship is—

I. M. M. T. S. “Dufferin”,

Mazgaon Pier,

Bombay, 10.

TELEGRAMS.

“Dufferin, Bombay.”

(ii) As the ship is lying  $1\frac{1}{4}$  nautical mile from the Pier and as Bunder boats are not easily obtainable, parents from up-country, coming to Bombay on a visit are advised to communicate with the *Captain-Superintendent* beforehand. Bunder boats are always obtainable from Prince’s Dock about two miles distant.

27. **Canteen.**—A canteen is provided for the use of the Cadets, where soft drinks, note paper, boot polish, pencils, chocolates, sweets and other sundries are sold at reasonable prices.

28. **Method of Entry and Necessary Qualifications.**—(i) Candidates must be British subjects, whose parents are domiciled in India, or subjects of a Ruling Prince in India, and must be between the ages of thirteen years eight months and sixteen years on January 15th of the year of entry into the DUFFERIN.

(ii) They will be required to pass a qualifying examination in Arithmetic Algebra, Geometry, English, History, Geography and General Knowledge conducted in English and set on the syllabus of the fourth standard at an Anglo-Vernacular School, see Appendix IV. This examination will be held about the 1st of November simultaneously at Bombay, Calcutta, Lahore, Lucknow, Patna, Madras, Delhi and Karachi. Candidates who pass the qualifying examination will be required to come to Bombay at their own cost for an interview with the Selection Board and to undergo an Eye-Sight Test for vision and colour blindness, and also a medical examination. These tests and the selection will ordinarily take place about the 7th of January. This compulsory Eye-Sight Test by Government does not in any way relieve the parents and guardians of their obligation to have the eyes of their candidate thoroughly tested by a qualified Ophthalmic Surgeon. Appendix II gives the standard of the Eye-Sight Test for the Executive Course and Appendix III gives the standard of the Eye-Sight Test for the Engineering Course. The Eye-Sight Test in the case of Engineer Cadets will be carried out by the Medical Officer of the “Dufferin”. The total number of entries in each year is limited to 50 Cadets; 25 for the Executive Course and 25 for the Engineering Course; for preliminary training as officers of the Mercantile Marine.

**EYE-SIGHT.**—The attention of all parents and guardians is invited to the memorandum on the question of eye-sight published on the first page of the Prospectus. Candidates who pass the Qualifying Examination and are invited to come to Bombay for interview and live near Bombay, Madras, Calcutta or Rangoon are strongly advised to apply for an official Eye-Sight Test to the Principal Mercantile Marine Officer of the respective Port. The fee for this test is Rs. 2.

(iii) The Governing Body retain the right of determining the number of qualified candidates who shall come to Bombay for selection. To avoid disappointment, parents should arrange to have their boys medically examined and their eye-sight tested prior to entering them for the qualifying examination. Certificates of fitness from a Government medical officer, not below the rank of an Assistant Surgeon, must accompany their application. Such certificates will in no way entitle the applicant to exemption from the further medical examination or eye-sight test in Bombay. Appendix II gives the standard of the latter test. Neither the Governing Body nor the Government of India will be responsible or liable for any expenses or losses whatsoever, incurred by the parents and guardians of the candidates invited to come to Bombay for interview and selection irrespective of their final admission or otherwise.

29. **Application for Entry.**—(i) An applicant for entry to the "Dufferin" must nominate the branch, Executive or Engineering, which he desires to enter, on the form at the time of making his application, which must be made on the perforated form on page 75 and must be posted to—

The Secretary to the Governing Body,

I. M. M. T. S. "Dufferin",

Mazgaon Pier,

Bombay, 10,

together with a Government currency Note of Rs. 10 (examination fee which will not be refunded), so as to reach that office not later than the 15th September each year. The following certificates in original must accompany the application form.

(ii) The fact that an application form or prospectus has been supplied, on whatever date, will not be accepted as an excuse for the late submission of an application with all the necessary certificates. Candidates who delay to obtain the prospectus and the application form until a late date will do so at their own cost.

- (1) Birth certificate in original or other satisfactory evidence of age. (Horoscopes and Extracts from Birth Registers in vernacular must be accompanied by an English rendering of its contents with the dates shown in terms of the Christian era duly countersigned by a J. P. or a District Magistrate. Certified extracts from School records are also accepted.)
- (2) Medical certificate in original, including certificate for eye-sight, by a Government medical officer not below the rank of Assistant Surgeon.
- (3) Certificate in original of good character from two respectable persons (other than relations of the applicant).





Football Eleven.

- (4) A certificate as given on the application form that they are British subjects or subjects of a ruling Prince in India, and that their parents are domiciled in India. (Signed by a J. P. or a Magistrate.)

(iii) The Secretary to the Governing Body will, on receipt of such applications, inform the parents or guardians of the time and date of the qualifying examination, and will forward a pass which the applicant must produce to the officer conducting the examination. Parents may expect to be informed, about the end of November of the results of the examination and the date on which successful candidates will be interviewed in Bombay, which will be about 7th of January. Successful candidates join on January 10th.

(iv) Successful candidates admitted to the Training Ship will be required to submit their Transfer or Leaving Certificates from the last School or Institution attended by them duly countersigned by the Educational Inspector of the Division or Circle concerned, within one month from the date of their admission and pending the satisfactory receipt of such a certificate, the admission of the candidates will be treated as provisional.

30. **Age Limit.**—No concession on account of age can be granted. No candidate who has passed his 16th Birthday\* on January 15th of the year of entry to the Ship will be admitted.

31. **Scholarships.**—(i) Six scholarships, each of the value of a remission of half fees, viz., Rs. 25 per month and applicable to Engineer and Executive cadets alike, have been granted by the Government of India. These are tenable for three years, provided that the boy makes satisfactory progress. The object of these scholarships is to assist those parents or guardians, who are not in a position to pay the full fees, to send their boys to the Training Ship.

(ii) These Scholarships are awarded by the Government of India through the Governing Body, after the final results of the Interview and Selection are ascertained, to six of the successful applicants on financial grounds.

**32. RULES FOR THE GRANT OF A SCHOLARSHIP BY THE GOVERNMENT OF BENGAL TO THE CADETS OF THE INDIAN MERCANTILE MARINE TRAINING SHIP "DUFFERIN".**

(1) One scholarship of the value of Rs. 25 per month will be granted annually by the Government of Bengal with effect from the 1st January 1936, to assist parents or guardians, who are not in a position to pay the full fees to send the boys to the Training Ship. This scholarship will be tenable for three years, provided that the conduct and progress of the holder are reported to be satisfactory. No boy shall be eligible for this scholarship whose father is not or was not either a native of Bengal or permanently domiciled in Bengal.

(2) Applications should be made in the prescribed form (obtainable from the Secretary to the Governing Body) and should be submitted to the Secretary

\*NOTE.—The first anniversary of the day of birth is the 1st birthday. Therefore the 16th anniversary of the date of birth is the 16th birthday, i.e., the day on which the applicant completes 16 years of age.



to the Governing Body, Indian Mercantile Marine Training ship "DUFFERIN", together with the necessary certificates mentioned therein, as soon as the candidate's application for admission to the qualifying examination has been registered. The selection of the candidate will be made by the Governing Body.

(3) The scholarship will be paid by deduction from the bill for fees for each term and parents or guardians who apply for a scholarship must be in a position to pay the balance of the fees and to provide the necessary uniform and equipment and the minimum extras as set out in the prospectus.

(4) An application for scholarship does not in any way influence the chances of selection for a candidate who is invited for interview. The fact that a scholarship is granted to the cadet does not absolve the parents or guardians from the responsibility of paying the fees and extras due to the Training Ship authorities in advance at the beginning of each term.

(5) The Governing Body reserve the right to reject any application for a scholarship without assigning any reason.

(AUTHORITY.—*Government of Bengal, Marine Department, letter No. 2280-Mne., dated 18th November 1935, to the Secretary to the Governing Body, I. M. M. T. S. "Dufferin".*)

### 33. INSTRUCTIONS TO APPLICANTS.

(i) Applications for these Government of Bengal and Government of India Scholarships must be made before 30th November on the separate special application forms, which can be had on specific request from the Secretary to the Governing Body, after the candidate's application for admission, with the necessary certificates, has been accepted for the qualifying examination.

(ii) These scholarships are only granted to such candidates, whose parents or guardians cannot afford to accept a cadetship for their son or ward without its aid, even if he passes the Qualifying Examination and is selected for admission.

(iii) Parents or Guardians of cadets who are granted this scholarship are in no way relieved of their financial liabilities to be met (*vide* pages 6-8 of the prospectus) when placing the cadets at sea or in an Engineering firm at the end of their training on board.

(iv) The fact that any scholarship is granted to the cadet does not absolve the parents or guardians from the responsibility of paying the full fees and extras to the Government in advance, as they fall due, at the beginning of each term, except in the case of Government of India Scholarships where half fees are paid with full extras for the term in advance.

(v) Parents or guardians who apply for one of these Scholarships must be in a position to pay the balance of fees and provide the necessary uniform and equipment and the minimum extras as set out in the Prospectus. They are also required to declare their income on the application form.

(vi) The Governing Body will reserve the right of rejecting any application or a scholarship without assigning a reason.

**34. RULES REGULATING THE GRANT OF GOVERNMENT OF INDIA SCHOLARSHIPS TO ENGINEERING CADETS PASSING OUT OF THE INDIAN MERCANTILE MARINE TRAINING SHIP " DUFFERIN " AND JOINING THE ENGINEERING WORKSHOPS IN INDIA FOR TRAINING IN MARINE ENGINEERING.**

(1) Fifteen scholarships of the value of Rs. 50 per mensem each will be awarded every year by the Government of India (hereinafter referred to as the " Government ") to fifteen Engineering cadets of the Indian Mercantile Marine Training Ship " Dufferin " (hereinafter referred to as the " Ship ") strictly in order of merit on the results of the Final Passing Out Examination (hereinafter referred to as the " Examination ") provided the cadets pass the Examination and the Government of India are satisfied that they are fit for a Marine Engineering career. Should there be any tie in the last two or three places due to the cadets obtaining equal marks, such cases shall be referred to the Governing Body of the Ship whose decision shall be final.

(2) The scholars shall be apprenticed for training at any Marine Engineering Workshop at a port in India as may be arranged for them by the Captain-Superintendent of the Ship (hereinafter referred to as the " Captain-Superintendent ").

(3) The scholarships shall be tenable for a period of three years, during which the scholar shall be required to serve his apprenticeship at the workshop in accordance with the provisions of the Rules relating to the Examination of Engineers in the Mercantile Marine published by the Government of India, Department of Commerce, provided the scholar remains in his post at the workshop and obtains satisfactory reports from the workshop authorities.

(4) Every scholar shall be required to keep a concise diary of his work to be submitted with the remarks of the workshop authorities to the Captain Superintendent through the Principal Officer, Mercantile Marine Department, concerned. The dates, on which each scholar shall be required to submit his diary, shall be fixed by the Captain Superintendent.

(5) The amount of the scholarship will be payable to each scholar on or after the first day of each month by the Principal Officer of the Mercantile Marine Department concerned. Payment will be made on receipt of a bill duly signed by the scholar and supported by a certificate of regular attendance, satisfactory progress and good conduct during the preceding month from the workshop authorities and if the scholar is employed in a workshop at a port other than Karachi approved by the following officers, namely:—

*at Calcutta*—the Principal Engineer and Ship Surveyor, Mercantile Marine Department.

*at Bombay and Madras*—the Engineer and Ship Surveyor, Mercantile Marine Department, authorised for the purpose by the Principal Officer, Mercantile Marine Department concerned.

(6) Every scholar shall, in accordance with the practice of the workshop at which he is apprenticed, attend such technical school for theoretical training as may be arranged for him by the Captain-Superintendent and be required to pay to such technical school the usual fees. The amount of such fees will, however, be refunded to the scholar from time to time by the Principal Officer

concerned. Payment will be made on receipt of a bill duly signed by the scholar and supported by a certificate of regular attendance, satisfactory progress and good conduct during the preceding month from the Principal of the Technical School and if the scholar is employed in a workshop at a port other than Karachi approved by the following officers, namely :—

*at Calcutta*—the Principal Engineer and Ship Surveyor, Mercantile Marine Department.

*at Bombay and Madras*—the Engineer and Ship Surveyor, Mercantile Marine Department, authorised for the purpose by the Principal Officer, Mercantile Marine Department concerned.

(7) The scholarship and the refund of technical school fees will normally be payable only during the period during which a scholar is actually engaged in his training and studies, but will not be withheld for any short period of absence on leave obtained by the scholar from the workshop authorities for reasons of ill health or on other urgent and adequate grounds provided the total period of such leave does not, in any case, exceed 30 days during a year.

(8) In the event of a scholar dying during the course of his training, the scholarship shall be terminated with effect from the date of his death.

(9) The scholars shall during the course of their apprenticeship be subject to the supervision of

- (i) The Captain Superintendent of the Ship in the case of those apprenticed at Bombay ;
- (ii) The Principal Officer, Mercantile Marine Department, Karachi, in the case of those apprenticed at Karachi ; and
- (iii) The Principal Officer and the Principal Engineer and Ship Surveyor, Mercantile Marine Department, Calcutta, in the case of those apprenticed at Calcutta.

They must obey all instructions which they may receive from these officers, failing which, they shall render themselves liable to forfeiture of their scholarships.

(10) Every scholar must give a written undertaking that he will at once and without discussion of possible alternatives devote himself exclusively to the course of training laid down for him, comply with whatever instructions are given and do whatever work they may involve. Any scholar who neglects his studies or whose work, conduct and progress are not reported to be satisfactory at any time during the course of his training or who tries to work for any other profession concurrently will render himself liable to forfeiture of his scholarship.

(11) The grant of the scholarship does not entitle the scholar on completion of his course to an appointment in Government service. He should, however, on completion of his workshop service report to the Captain Superintendent.

(12) In the event of any doubt arising regarding the interpretation of these rules, the decision of the Government shall be final and the Government reserve to themselves the right of amending these rules as may be considered necessary.

[*Authority*.—Government of India, Commerce Department, letter No. 203-M.II(3)/37, dated the 28th June 1937.]

**SERVANTS OF INDIA SOCIETY'S  
BRANCH LIBRARY  
BOMBAY**



Ship's Trophies.

### 35. SCHOLARSHIPS BY PRIVATE OR PUBLIC BODIES.

Applications for these Scholarships should be made to the donors preferably through the Captain Superintendent, but they will only be considered after the candidates have been admitted to the Training Ship, and in no way affect the conditions of entry or the responsibility of the parents for fees, etc.

### 36. THE SCINDIA STEAM NAVIGATION COMPANY'S "SCHOLARSHIPS".

*Rules for the Scholarships offered by the Scindia Steam Navigation Company, Limited, to the Cadets of the Indian Mercantile Marine Training Ship "Dufferin". (Forwarded under letter No. O/S-188, dated the 12th/13th March 1935.)*

#### I. Scholarships for the Executive Cadets—

(1) One scholarship, called "Sheth Narottam Morarjee Scholarship", of the value of Rs. 200 per year tenable on board for three years, including the first year, will be granted to that Cadet who stands highest among the Executive Cadets at the Preliminary Examination at the end of the First Term. The scholarship will be payable at the end of each year.

(2) One scholarship of the value of Rs. 400 per year tenable for a period of three years, two years of which shall be while the Executive Cadet is on board the Training Ship and the 3rd year shall be while the Executive Cadet is serving an apprenticeship on a steamer of the Company, will be granted every year on condition that the Executive Cadet holding the scholarship and his parents for him undertake by agreement that the Executive Cadet shall join the Company as apprentice on completion of the training and shall, after obtaining a certificate of competency for second mate, serve the Company in such capacity as the Company shall determine for at least a period of five years on the then existing Company's scale of pay and shall conform to the Company's other terms and conditions of service. The Company will select the Executive Cadet eligible for this scholarship from those who have been on board the Training Ship for a period of one year and have applied for it.

(3) One scholarship of the value of Rs. 200 per year tenable on board for three years, will be given every year to the Executive Cadet who without help of such a scholarship may not be in a position to pay the full fees of the Training Ship. The Cadet will be selected by the Company from those who will apply for this scholarship.

#### II. Scholarships for the Engineering Cadets—

(4) One scholarship, called "Sheth Narottam Morarjee Scholarship", of the value of Rs. 200 per year tenable for three years, including the first year, will be granted to that Cadet who stands highest among the Engineering Cadets at the Preliminary Examination at the end of the First Term. The scholarship will be payable at the end of each year.

(5) One scholarship of the value of Rs. 400 per year tenable for a period of five years, 2 years of which shall be while the Engineering Cadet is on board the Training Ship and the remaining period shall be while the Cadet is serving his practical apprenticeship in a Marine Workshop approved by the Company, will be granted every year on condition that the Engineering Cadet holding the scholarship and his parents for him undertake by agreement that the

Engineering Cadet shall join the Company as Junior Engineer on completion of the training in the Workshop and shall, after obtaining the certificate of competency for Second Engineer serve the Company in such capacity as the Company shall determine for at least a period of five years on the then existing Company's scale of pay and shall conform to the Company's other terms and conditions of service. The Company will select the Engineering Cadet eligible for this scholarship from those who have been on board the Training Ship for a period of one year and have applied for it.

6. One scholarship of the value of Rs. 200 per year, tenable on board for three years, will be given every year to the engineering cadet who without help of such a scholarship may not be in a position to pay the full fees of the Training Ship. The Cadet will be selected by the Company from those who will apply for this scholarship.

7. The continuance of each of the scholarships mentioned above is subject to periodical satisfactory report of the Captain Superintendent as regards the character and progress of the holder of the scholarship on the Ship.

For the Scindia Steam Navigation Co., Ltd.

BOMBAY :

(Sd.) S. J. PANDYA.

Dated the 12th March 1935.

Manager.

### 37. BOMBAY PORT TRUST SCHOLARSHIPS.

*Rules governing the grant of the Bombay Port Trust Scholarships to Cadets of the I. M. M. T. S. " DUFFERIN ".*

(1) The scholarships will be awarded each year at the annual prize-giving to two cadets of the I. M. M. T. S. " DUFFERIN ", who have completed the full course on board the " Dufferin " to the satisfaction of the Captain Superintendent and who have obtained an " Extra Certificate " at the Passing Out Examination ; *provided however that any Cadet who is a son or dependent of a Port Trust employee or ex-employee, and who has obtained a 1st Class Certificate at the Passing Out Examination, may be awarded a scholarship by the Special Sub-Committee mentioned in paragraph 2, if so recommended by the Captain Superintendent.*

(2) The choice of the Cadet for the award shall be made by a Special Sub-Committee of the Governing Body consisting of the following :—

- (a) The Chairman,
- (b) The Member representing the Bombay Port Trust,
- (c) One other Member,
- (d) The Captain Superintendent,

provided that should either the Chairman or the Member representing the Bombay Port Trust be unable to sit, they may be replaced by other Members of the Governing Body appointed at a General Meeting prior to the date of the Prize-Giving.

(3) The two scholarships of Rs. 30 each per month will be tenable for a period of three years from the 1st January following the Prize-Giving at which they are awarded, provided that the holder continues to follow a sea career and obtains satisfactory reports from his employers. In addition an equipment grant of Rs. 500 each will be made to the cadets, payable through the Captain Superintendent, at the time of their passing out, to meet the initial outlay on uniforms, technical instruments, books, etc., with permission to use the surplus towards payment of their apprenticeship premia.

(4) The value of the scholarship, *viz.*, Rs. 30 per mensem, shall be payable to each Cadet holding the scholarship during its currency on or after the first day of each month, and will be paid by the Chief Accountant of the Bombay Port Trust on receipt of a bill duly signed by the Cadet, and supported by a certificate of good conduct during the preceding month from the Master of the Ship in which he is serving, or from his employers.

(5) In the event of a holder of the scholarship being for any reason unable to claim the amount to which he is entitled, the amount shall be placed to his credit and may be paid to him at any time within one year of the date on presentation of the claim as prescribed in Rule 4.

(6) In the event of the holder of the scholarship failing without good reason to claim the payment to which he is entitled within one year of the due date, the amount will lapse to the Trustees.

(7) In the event of a holder of the scholarship dying, the scholarship shall be terminated with effect from the date of his death.

(8) In the event of the holder of the scholarship failing to continue to follow a sea career or to produce the certificate of good conduct prescribed in Rule 4, the scholarship shall be cancelled.

(9) The Trustees will assist Holders of the scholarship to obtain apprenticeships with a Shipping Company and will continue the payment of Rs. 30 per mensem during periods of unemployment due to causes over which the holder has no control provided that should the holder be unable through ill-health to serve at sea, payment may be suspended during the period he is incapacitated for such service.

(10) The grant of these scholarships does not imply any promise of eventual employment under the Bombay Port Trust but applicants for entrance vacancies in the Bombay Pilot Service who have held these scholarships will be given preference of selection subject to compliance with the conditions of appointment.

### 38. KARACHI PORT TRUST SCHOLARSHIPS.

*Rules for the grant of scholarships by the Karachi Port Trust for training in the I. M. M. T. S. "Dufferin".*

(1) The Trustees of the Port of Karachi have instituted two annual scholarships of the value of Rs. 360 each tenable for three years, for the training of



Indian boys in the Indian Mercantile Marine Training Ship "Dufferin" stationed at Bombay. Cadets for training either as Executive Officers or Engineer Officers will be equally eligible for these scholarships.

(ii) Where a cadet is already the recipient of a scholarship from some other source, he will not ordinarily be eligible for a Port Trust scholarship unless there are no other suitable candidates, in which case the amount of the scholarship will be restricted to an amount not exceeding Rs. 200 per annum as may be recommended by the Captain Superintendent of the Training Ship, through whom *all* applications for scholarships must be submitted.

(2) The scholarships are open :—

(a) One to the son of a Karachi Port Trust employee,

(b) One to a boy who has been a resident in the Province of Sind for a period of not less than 10 years, preference being invariably given to a Sindhi,

who may be successful at the Qualifying examination of the Governing Board of the "Dufferin" and selected as a Cadet by the Board. Applications will only be considered after a candidate has been selected by the Board.

(3) (i) The awarding of the scholarships will be entirely at the discretion of the Board of Trustees. In the event of there being no applicant for one or the other of the two scholarships, both scholarships may be awarded to boys of the same class, *i.e.*, both scholarships may be awarded to sons of Port Trust employees or to two boys who have been residents in the Province of Sind as in (b) of rule 2 above.

(ii) In special cases, where there are no applicants for the scholarships satisfying the conditions of clause (b) of Rule 2, the Board of Trustees may relax the condition as regards the period of ten years continuous residence in the Province of Sind provided the applicants in such cases are Sindhis.

(4) The scholarships will be payable in quarterly instalments in arrears by the Chief Accountant, Karachi Port Trust, on a bill from the Cadet/Parent or Guardian countersigned by the Captain Superintendent of the "Dufferin" and they will only be paid on the Captain Superintendent's certificate of the boy's satisfactory progress.

(5) Parents or guardians who apply for the scholarships must be in a position to pay the balance of the fees payable for training on the vessel, provide the necessary uniform and equipment and the minimum extras set out in the prospectus of the "Dufferin". Applicants for scholarship (b) must, therefore, produce satisfactory proof that they are in a position to defray these expenses and also that the boy has been a resident in the Province of Sind for not less than 10 years, and if he is a Sindhi or not.

(6) No restriction will be placed on the boys passing out on the Board's scholarships as to their future employment, but preference will be given to them should there be any vacancies in the Port Trust service which they may be qualified to fill.

**AUTHORITY.**—*Letter No. 304, dated the 26th January 1935, from the Secretary, Karachi Port Trust, Karachi.*



Science Class.

### 39. KARACHI MUNICIPAL CORPORATION SCHOLARSHIPS.

*Rules for grant of scholarship by the Karachi Municipal Corporation for naval training (as Executive Officers or Engineer Officers) on the I. M. M. T. S. "DUFFERIN".*

(Forwarded under letter No. G. 20A/32/33, dated the 8th/9th January 1935, from the Chief Officer, Municipal Corporation, Karachi.)

The Karachi Municipal Corporation have sanctioned the grant of one scholarship every year of the value of Rs. 360 per annum tenable for three years for naval training (as Executive Officers or Engineer Officers) of Indian boys in the Indian Mercantile Marine Training Ship "Dufferin" stationed at Bombay.

The scholarships are open to :—

- (1) Sons of such of the citizens of Karachi as have been residents of Karachi for a period of not less than 10 years who may be successful at the qualifying examination of the Governing Board of the "Dufferin" and selected as a cadet by the Board. Applications will only be considered after a candidate has been selected by the Board, proof of which should accompany the application.
- (2) The awarding of the scholarships will be entirely at the discretion of the Standing Committee.
- (3) The scholarships will be payable *in quarterly instalments in arrears* by the Chief Officer, Karachi Municipal Corporation, on a bill from the Cadet/Parent or Guardian, countersigned by the Captain Superintendent of the "Dufferin", and they will only be paid on the Captain Superintendent's certificate of the boys' satisfactory progress.
- (3-A) The Cadet who fails to pass his examination in one year during his course of naval training shall not be entitled to receive the Municipal Scholarship during the remaining period of his training, provided that the Corporation may, as a special case, sanction the continuance of the scholarship on the recommendation from the Captain Superintendent of the Ship, certifying that the Cadet's progress throughout the academic year was satisfactory and provided further that a Cadet shall not be entitled to the continuance of the Municipal scholarship if he has failed more than once during his course.
- (4) Parents or guardians who apply for the scholarships must be in a position to pay the balance of the fees payable for training on the vessel, provide the necessary uniform and equipment and minimum extras set out in the prospectus of the "Dufferin".
- (5) No restriction will be placed on the boys passing out on the Municipal Scholarships as to their future employment.

#### 40. UNIVERSITY OF MADRAS SCHOLARSHIPS.

##### *Laws governing the award of Scholarships for training in Navigation or Marine Engineering.*

It shall be within the competence of the Syndicate to award scholarships to candidates to enable them to undergo training in Navigation or Marine Engineering :—

(1) The scholarships not exceeding three in number, shall be of the value of Rs. 40 per mensem and shall be tenable for a period of three years and shall be awarded, subject to the passing of the qualifying examination for admission and acceptance into the Indian Mercantile Marine Training Ship "Dufferin", provided that the awards made in the years 1933 and 1934 shall be of the value of Rs. 60 each per mensem.

(2) The scholarships are available only for those students who are domiciled within the territorial jurisdiction of the Madras University, and are desirous of following a career in the Mercantile Marine, but who, on account of financial difficulties cannot afford the expenditure required for the necessary training. They shall be awarded to those candidates who have been selected by the authorities of the Indian Mercantile Marine Training Ship "Dufferin" for admission to the training course. Preference shall be given to those among the selected candidates who have been declared eligible for admission to courses of study in this University.

(3) A candidate for a scholarship must send in his application in the prescribed form to the Registrar so as to reach him on or before the 15th December of the year preceding the year in which he proposes to join the training course, or within two weeks after the selection of candidates for training has been made.

(4) Applicants must be within the ages of 14 and 16 years on the 15th January of the year of commencement of training, must be of sound constitution and of Indian domicile and must produce evidence of age and domicile and of the need for financial help as mentioned in clause 2 above. Candidates belonging to sea-faring communities will be given preference.

(AUTHORITY :—*Letter No. A.-2057, dated April 25th, 1935, from the Registrar, University of Madras, to the Captain Superintendent, I. M. M. T. S. "Dufferin".*)

#### 41. RULES GOVERNING THE GRANT OF THE MADRAS PORT TRUST SCHOLARSHIP TO CADETS OF THE I. M. M. T. S. "DUFFERIN."

(1) The scholarship will be awarded each year at the annual prize-giving to a cadet of the I. M. M. T. S. "Dufferin" who belongs to the Madras Presidency on completion of the full course on board the "Dufferin" to the satisfaction of the Captain Superintendent, if he has obtained an "Extra Certificate" at the Passing Out Examination; *provided however that any cadet who is a son or dependent of a Madras Port Trust employee or ex-employee, and who has obtained a 1st class certificate at the passing out examination, may be awarded the scholarship by the Special Sub-Committee mentioned in paragraph 2 if so recommended by the Captain Superintendent.*

(2) The choice of the cadet for the award shall be made by a Special Subcommittee of the Governing Body consisting of the following :—

- (a) The Chairman,
- (b) The Member representing the Madras Presidency,
- (c) One other Member,
- (d) The Captain Superintendent,

provided that, should either the Chairman or the Member representing the Madras Presidency be unable to sit, they may be replaced by other members of the Governing Body appointed at a General Meeting prior to the date of the Prize-giving.

(3) The scholarship will be tenable for a period of three years from the 1st January following the Prize-giving at which it is awarded, provided that the holder continues to follow a sea-career and obtains satisfactory reports from his employers.

(4) The value of the scholarship, viz., Rs. 40 per mensem, shall be payable to the cadet holding the scholarship during its currency on or after the first day of each month, and will be paid by the Chief Accountant of the Madras Port Trust on receipt of a bill duly signed by the Cadet, and supported by a certificate of good conduct during the preceding month from the Master of the Ship in which he is serving, or from his employers.

(5) In the event of a holder of the scholarship being for any reason unable to claim the amount to which he is entitled, the amount shall be placed to his credit and may be paid to him at any time within one year of the date on presentation of the claim as prescribed in Rule 4.

(6) In the event of the holder of the scholarship failing without good reason to claim the payment to which he is entitled within one year of the due date, the amount will lapse to the Trustees.

(7) In the event of a holder of the scholarship dying the scholarship shall be terminated with effect from the date of his death.

(8) In the event of the holder of the scholarship failing to continue to follow a sea career or to produce the certificate of good conduct prescribed in Rule 4, the scholarship shall be cancelled.

(9) The Trustees will assist a holder of the scholarship to obtain apprenticeship with a shipping Company and will continue the payment of Rs. 40 per mensem during periods of unemployment due to causes over which the holder has no control provided that, should the holder be unable through ill-health to serve at sea, payment may be suspended during the period he is incapacitated for such service.

(10) The grant of the scholarship does not imply any promise of eventual employment under the Madras Port Trust, but applicants for vacancies in the Madras Port Trust Pilot Service who have held the scholarship will be given preference of selection subject to compliance with the conditions of appointment.

(AUTHORITY :- Letter No. G.-4796, dated 4th February 1935, from the Chairman, Madras Port Trust, to the Secretary to the Governing Body, I.M.M.T.S. "Dufferin".)

**42. RULES GOVERNING THE GRANT OF SCHOLARSHIPS BY THE COMMISSIONERS FOR THE PORT OF RANGOON TO CADETS UNDER TRAINING ON THE I. M. M. T. S. "DUFFERIN".**

(1) The two Scholarships shall be of the value of Rs. 360 each per annum tenable for three years during training on the I. M. M. T. S. "Dufferin"; and shall be awarded annually if the Commissioners so decide.

(2) The Scholarships shall only be open to boys of Burma domicile (which expression includes boys brought up in Burma and who are sons of persons ordinarily resident in Burma) who are not already in receipt of similar scholarships. Special consideration will be given to applicants who but for the aid of a scholarship would be unable to afford the cost of training, and applicants should produce evidence of the need of financial help. Preference will be given to candidates who are sons of Commissioners' employes.

(3) The Scholarship shall be available to those undertaking either the Executive Course or the Engineering Course of training.

(4) Applications shall be invited by public advertisement and the scholarships shall be offered to selected candidates prior to the holding of the official examination for admission to the I. M. M. T. S. "Dufferin"; the awards to be contingent on their being accepted for training.

(5) The Scholarships shall be payable in quarterly instalments in arrears, on bills from the Cadets or from their Parents or Guardians, countersigned by the Captain Superintendent and shall only be paid on the Captain Superintendent's certificate of the cadet's satisfactory progress.

(AUTHORITY.—*Letter No. 2-M.-51, dated 21st December 1936 from the Secretary, Commissioners for the Port of Rangoon, to the Captain Superintendent, I. M. M. T. S. "Dufferin".*)

**43. THE G. I. P. RAILWAY STAFF BENEFIT FUND SCHOLARSHIPS.**

Two scholarships each of Rs. 320 per annum tenable for three years are available *only to the children of the G. I. P. Railway Employees* who may be selected for training on board the I. M. M. T. S. "DUFFERIN". All enquiries and applications for this Scholarship must be made direct to the Chairman of the G. I. P. Railway Staff Benefit Fund, Headquarters Committee, Agent's Office, G. I. P. Railway, Victoria Terminus, Bombay.

**PRIVATE SCHOLARSHIPS.**

44. All bills for Scholarships, except those granted by the Government of India and the Government of Bengal must be prepared by the Parents or Guardians and sent in duplicate to the ship for countersignature. The grant of any such scholarship in no way releases the Parents or Guardians from the responsibility of payment of full fees required by the Government of India and all Extras.



**Engineering Manual.**  
**Engineering Cadets on Main Engines.**

## PRIZES.

## VICEROY'S GOLD MEDAL.

His Excellency the Viceroy has been graciously pleased to grant a Gold Medal to the Cadets of the "DUFFERIN". The medal is awarded to the Boy who shows the qualities likely to make the finest sailor ;

The Viceroy's Gold Medal is open to cadets of both branches.

" these consist of cheerful submission to superiors, self-respect and independence of character, kindness and protection to the weak, readiness to forgive offences, desire to conciliate the differences of others, and above all fearless devotion to duty and unflinching truthfulness."

Regulations for award are.—The Medal will be open to boys who have been two years on board the ship and have received not less than half the total number of marks at the previous Term Examination. The Commander, after conferring with the Head Master, the Chief Officer and the Chief Engineer, shall select not less than three nor more than five of the boys whom he considers to possess the qualities for which the prize is given. He shall then submit these names to the boys who have been assembled for the purpose in the School and each boy who has been on board six months previous to the time of distribution, shall then and there vote for one of the boys so selected.

The boy who obtains the highest number of votes shall receive the Medal.

## The Governing Body Prize.

Presented annually by the Governing Body to the Cadet who stands second in the competition for His Excellency the Viceroy's Gold Medal.

## The Chairman's Prize.

Presented by the Hon'ble Sir Muhamad Zafrulla Khan, Kt., K.C.S.I., Bar-at-Law, for Theory of Seamanship.

## The British India Steam Navigation Company's Prize.

Presented by the Directors of the British India Steam Navigation Company for Practical Seamanship.

## The Bombay Steam Navigation Company's Prize.

Presented by the Bombay Steam Navigation Company for Machine Drawing.

## The Digby-Beste Silver Medal.

Presented by Captain H. Digby-Beste, C.I.E., O.B.E., R.I.N., for General Proficiency.

## The Sawyer Prize.

Presented by J. J. Flockhart, Esq., J.P., for the most efficient Cadet-Captain—to be retained by the winner.



**English Essay.**

Presented by the Oxford University Press (Indian Branch).

**The Doctor Raja Reddiar Prize.**

Presented by Raja S. Ramanatha Reddiar, Esqr., LL.D., for "The Rule of the Road".

**The Marconi Prize.**

Presented by the International Marine Communication Company Limited, for Morse and Knowledge of Direction Finder.

**Engineering Prize.**

Presented for the best Paper in Elementary Engineering, provided the boy has shown practical aptitude in this subject.

**The Meteorology Prize.**

Presented by the Indian Meteorology Department for Meteorology.

In addition to the above special awards, four Prizes are given to each class as follows :—

- (1) First in all Subjects.
- (2) Second in all Subjects.
- (3) Best Progress.
- (4) Mathematics, Navigation and Trigonometry.

Many other trophies have been presented to the Ship for Boxing, Boat racing, Signalling, Football and Sports.

**The Maulvi Abul Kasem Silver Medal.**

Presented by Sir Abdul Halim Ghuznavi, Kt., M.L.A., for the best cadet in Engineering Knowledge (N. E. Form).

**The President, "Dufferin" Old Cadets' Association Prize.**

Presented by C. B. Sethna, Esq., O.B.E., J.P., President, "Dufferin" Old Cadets' Association for the best All-round Cadet Captain obtaining the First Class Certificate.

**The Old Boys' Prize.**

Presented by the "Dufferin" Old Cadets' Association to the Cadet who passes first in Seamanship and Signals (Junior Form).

**Messrs. Lawrence and Mayo Prize.**

Presented by Messrs. Lawrence & Mayo Ltd., for the best Navigation Paper.

## Curriculum of three years' course on I.M.M.T.S. "Dufferin".

### GENERAL.

#### English Curriculum.

A large proportion of the First Year is devoted to intensive instruction in English to enable the Cadets to derive the greatest possible value from the Course, which is largely technical and conducted entirely through the medium of English.

#### *First Year.*

Writing from dictation, reproduction of short stories from memory, study of English text books, commercial English and letter-writing, English grammar, the reading of approved English authors, debates on selected subjects, the meaning of various phrases and abbreviations, frequent practice in conversational and idiomatic English, the cultivation of a good English accent and essay writing.

#### *Second Year.*

As above in increasing difficulty.

#### *Third Year.*

As above, but at a more advanced stage.

#### History Curriculum.

#### *First Year.*

History of India :—

- (1) Ancient India—Elementary Knowledge of such topics as the Vedic Age, the Epic Age, the expansion of Hindu power, Buddha, the Maurya and the Gupta Dynasties, the Buddhistic Age and the Puranic Age.
- (2) The Moghul Period.
- (3) The Mahratta Period.

History of the British Empire :—

- (1) Various types of colonies, voyages of discovery.
- (2) American Colonies: European settlements in North America. Anglo-French struggle. Conquest of Canada: effect of mercantile system on American Colonists; War of Independence.

#### *Second Year.*

History of India : British Period up to 1857.

History of the British Empire; Australasia. Early discoveries; Tasman; Dampier; Cook; Development of N. S. Wales and growth of other Colonies; Australian Federation Act of 1900, Government of Australia; New Zealand.

Canada ; Quebec Act, Ontario settled, Canada Act of 1791, Expansion to West, Reunion Act, B. N. America Act, Government of Canada, Senate *Coandammons*, modern development, C. P. Railway.

*Third Year.*

History of India ; British Period 1857 to 1900. Present Administration of India. Elementary knowledge of —.

The Secretary of State and his Council.

The Viceroy and Governor General. His Executive Council.

The Central Legislature.

The Provincial Governments. Provincial Legislative Councils.

Maintenance of Internal Order ; the Magistracy and Police

The Administration of Justice. Chief sources of Revenue and Heads of Expenditure—Central and Provincial.

The Indian States.

History of the British Empire ; South Africa-Dutch settlements, British Occupation ; Boer trek, Transvaal Republic, Natal, First Boer War, etc., to 1909. Remaining British Possessions.

Effects of Peace Treaty, 1919, Mandated areas.

**Geography Curriculum.**

*First Year.*

The solar system ; the earth and its motions ; seasons ; latitude and longitude ; time ; the moon ; eclipses ; tides. The atmosphere ; temperature ; atmospheric pressure ; winds ; climate.

Oceans, their depths, movements, and currents ; effects of ocean currents on climate and commerce.

*Second Year.*

Rivers and their action ; snow and ice ; mountains and volcanoes ; coral reefs ; ocean floors. Map study and projections. Climatic zones ; vegetation ; occupations of man.

Transport by land and sea. Economic development of the British Empire

India : boundaries, physical divisions, soil, rivers, irrigation, population, vegetable and mineral products, industries, trade. Regional geography of India.



**Seamanship Manual.**

*Third Year.*

The British Isles, minerals, manufactures, ports, and climate. Canada, United States, West Indies, Mexico, South America, Africa, Australia, Europe, Persia, Western Asia, Indo-China, and the East Indies. Outlines of their geography regarding capitals, ports, trade, etc.

General revision.

**Arithmetic Curriculum.***First Year.*

Revision of weights and measures, the four simple rules, reduction, compound rules, practice, unitary method without fractions, areas and volumes without fractions, prime numbers, H. C. F. and L. C. M., Roots by prime factors.

Fractions, decimals, squares, square root, reciprocal tables, unitary method with fractions, Metric System.

*Second Year.*

Ratio and proportion, harder areas and volumes problems, percentages, profit and loss, approximations.

Revision of work previously done.

*Third Year.*

Simple interest, compound interest, stocks and shares, the circle, the cylinder.

Further revision.

**Algebra Curriculum.***First Year.*

Revision of the use of letters, generalised arithmetic (not fractions), squares square roots, H. C. F., L. C. M., brackets, unitary method, negative numbers simple equations and problems thereon. Fractions, factors, theory of indices and logarithms.

*Second Year.*

Graphical work, simultaneous equations and problems thereon, quadratics and problems thereon, simultaneous quadratics, revision of previous work.

*Third Year.*

Literal equations, graphical solution of quadratics, harder fractions and equations, harder multiplication and division, identities, general revision.

**Geometry Curriculum.***First Year.*

Revision of elementary work including—

Construction of an angle equal to a given angle, bisection of angles, arcs and straight lines, construction of perpendiculars to a straight line from points in and without it, construction of parallels to a given straight line, construction of triangles, division of straight lines into a number of equal parts.

Relation of angles at a point made by straight lines, properties of triangles, of parallel lines and of a parallelogram.

Solid, surface, measurement of straight lines, angles of a triangle and polygon.

*Second Year.*

Tests for congruence, ambiguous case, similar triangles and drawing to scale, isosceles triangle, inequalities, parallelograms and congruence.

Intercept theorems and constructions, Pythagoras' theorem, the sine, cosine and tangent of an acute angle.

Area of rectangle, parallelogram, triangle, trapezium. Area constructions, symmetrical properties of circle, angle properties of circle; tests for concyclic points, equality of area, tangent properties, construction of tangents, mensuration of circle, construction of circles from various data, regular polygons.

*Third Year.*

Geometrical representation of identities, segments of a straight line, extensions of Pythagoras' theorem, Apollonius' theorem, the rectangle contained by segments of a chord of a circle, meaning of a locus, use of loci in construction, theorems on loci.

Meaning of Ratio, proportional division of lines, the bisector of an angle of a triangle, tests for similarity, mean proportional, properties of the circle, areas of similar figures, constructions depending on similarity.

Solid geometry; prism and cylinder, pyramid, cone, inclination of line and plane, and plane to plane, sphere elementary plan and elevation.

**Mechanics Curriculum.**

**Theoretical Mechanics.**

*First Year.*

**Mechanical Units.—Dynamics :—**

Velocity, Uniform and variable, relative velocity, acceleration and retardation, gravitational acceleration, laws of falling bodies. Force, measurement and effect of force, vectors and force diagrams, moments, resultant of moments, principle of moments.

WORK.—Units of work; work done in rotation; graphical representation of work, work done in lifting machines, principle of work applied to machines. Power, power of engines and pumps. Horse power, indicated and brake. Centres of gravity, determination of C. G. of areas and volumes, properties of the C. G.

*Second Year.*

Mass and Force; Newton's laws of motion, weight and its relation to mass Atwoods machine; work, potential and kinetic energy.

The inclined plane, force to move a body on plane, parallel and inclined forces. Transmission of force, the wedge, equilibrium, moments of plane forces, parallel forces, couples.

*Third Year.*

Hydraulics, fluids, fluid pressure, hydraulic pressure machine, presses, jacks, accumulators, lifts, cranes, pumps, suction and force, pressures on immersed surfaces, oblique surfaces, water in motion, flow from orifice, jets, water wheels, centrifugal pumps.

Buoyancy, stability, displacement, hydrometry, density.

**Science Curriculum.***First Year.*

General properties of matter. Differences between solids, liquids and gases. Boyle's Law. Specific Gravity. Heat a form of energy, difference between quantity of heat and temperature, thermometry, effects of heat. Specific heat. Hygrometry, dew-point. Conduction, convection and radiation.

Theory of Light. Reflection and refraction, light reflected from a plane mirror, refraction in a prism. The telescope, periscope, sextant.

Sound, its nature and propagation, reflection of sound waves, syren, echo.

*Second Year.*

Magnetism. Lodestone. Properties of a magnet, different methods of preparing a magnet attraction and repulsion.

The Barometer, marine and aneroid, fiducial temperature, centibar readings.

Electricity (frictional), electroscope, attraction, repulsion, induction power of points. Electric Potential, electric discharge. Conductors and non-conductors, condensers. Current electricity, simple cells. Electric current, voltmeters, ammeters, galvanometer, resistance. Simple dynamos, electric bells, telephone.

*Third Year.*

General revision of whole Course.

**Trigonometry Curriculum.***1st year.*

(Executive and Engineering Cadets.)

Introduction to the subject. Meaning of the word Trigonometry, its comparison with Geometry. To show with the help of a number of similar rt.  $\sphericalangle$  triangles of various sizes how far an angle of the same magnitude the ratios of different pairs of sides continue to be the same.

The different parts of rt  $\sphericalangle$  triangle, the names of different sides in connection with either of the complementary  $\sphericalangle$ s, the six Trigonometrical Ratios, their names, values and abbreviations used.

The Theorem of Pythagoras. Proofs of simple identities. Comparison, of the ratios of complementary  $\sphericalangle$ s ; Reciprocals.

*Logs.*—Intensive practice in the use of logs in multiplication, Division, Evolution, and Involution. Use of Log. Tables to find out Logs of different ratios.

Solution of simple rt  $\sphericalangle$  triangles and easy problems thereon. Angles of Elevation and Depression, heights and Distances problems, drawing of correct figures for the problems, simple problems dealing with Departure, D'lat, D'long

Values of the ratios of angles of 30, 45, 60, 0 and 90 degrees.

Solution of the four types of oblique plane triangles and simple problems thereon.

N. B. From this point onwards the Trigonometry Course for the Executive Cadets enters the Spherical Trigonometry and more advanced plane Trigonometry. The Engineering cadets learn nothing more, but are given intensive practice in the application of what they have learnt to mechanical and engineering problems. There is no separate Trigonometry subject as such in the Remove and Nautical Years.

(Executive Cadets only.)

Introduction to the study of a sphere, small and great circles. Spherical angles and triangles. Solution of rt $\sphericalangle$ d sphl. trinagles. The five circular parts of a rt $\sphericalangle$ d sph. tri $\sphericalangle$ , and the application of Napier's rules in solving these tri $\sphericalangle$ s.

(Proofs of Napier's Analogies are omitted.)

2nd year.

(Executives only.)

Rt. angled sph. tri $\sphericalangle$ s. contd. Quadrantal tri $\sphericalangle$ s solved.

Identities involving one angle only. Simple problems based on rt $\sphericalangle$ d plane tri $\sphericalangle$ s and oblique plane tri $\sphericalangle$ s.

Proofs of sine and cos. of compound angles, and the important Theorems derived from these, e.g., SinC plus and minus SinD, CosC plus and minus CosD, SinA and CosA in terms of ratios of half A. Sin2A, cos2A. Sin3A, cos3A. sin15. sin75, sin18, cos36. Identities involving these theorems. (Identities involving the three angles of a tri $\sphericalangle$  are omitted).

Simple equations requiring the value of the angle involved. Oblique sph. triangles chiefly two cases. 1. given two sides and the included angle. (solved with the help of Hav formula for the side and the Tan formula for the angles.) 2. given three sides—to find angles with the Hav formula. (No proofs are done for these sph. Formulæ).

3rd year.

(Executive cadets only.)

Intensive revision of portion done. Identities involving one or two angles only, equations and problems on plane Trig.

Proofs of the various formulæ used in solving plane tri $\sphericalangle$ s. :—

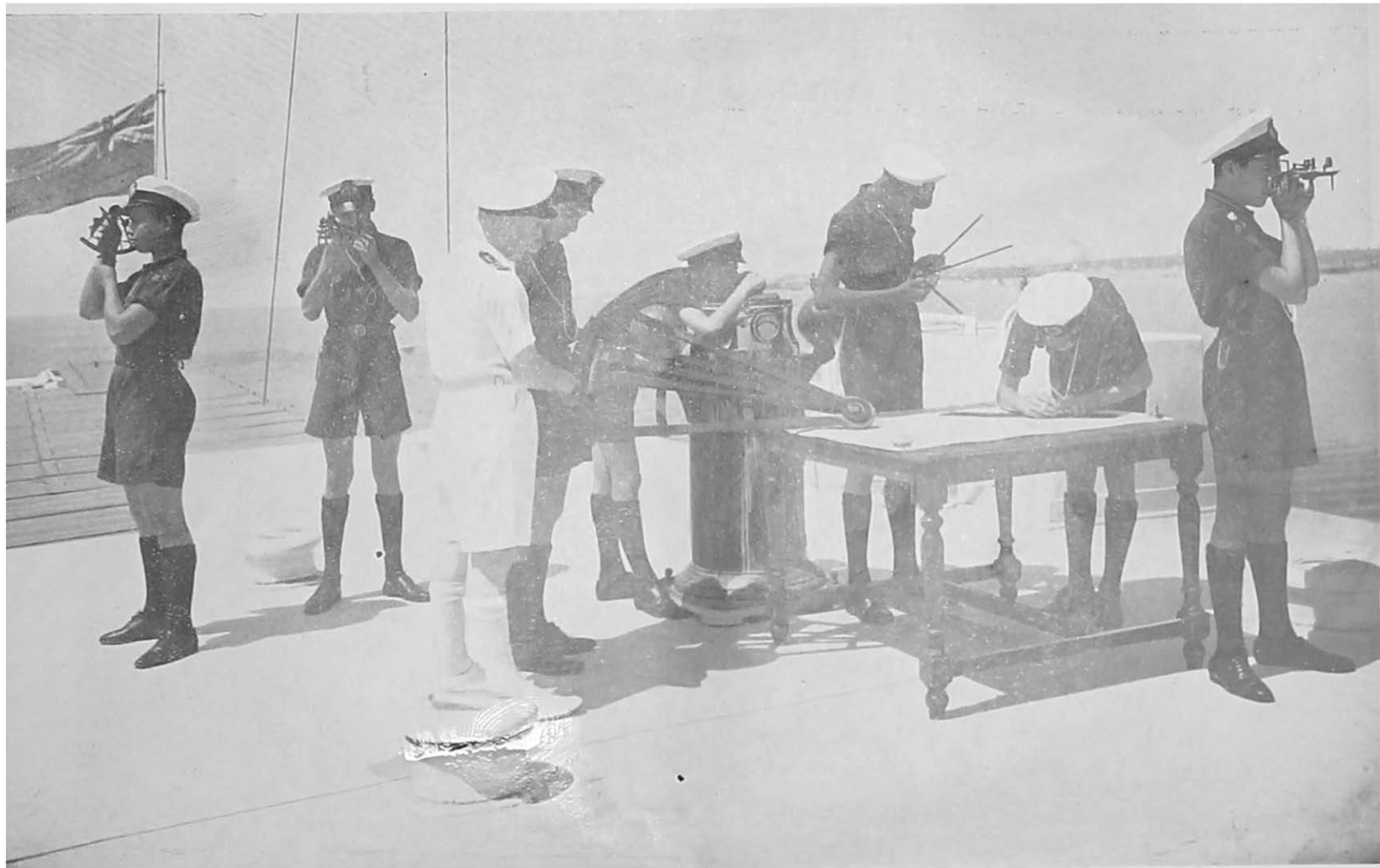
1. Rule of sines 2. Tan formula. 3. Hav formula. 4. To express Cos of an angle in terms of the sides of a tri $\sphericalangle$ . 5. Sine and Cos of half an angle in terms of sides. 6. Area of a tri $\sphericalangle$  in terms of two sides and the sin of included  $\sphericalangle$ , or in terms of three sides.

7. Radii of inscribed and circumscribed circles.

*Great Circle Sailing.*—Drawing of an accurate figure locating the starting point and the destination, the vertex, finding out the great circle distance, the courses, and the position of the vertex.

The proofs of Napier's Analogies, and the various formulæ used in sph. trig. are omitted. Cadets are given plenty of practice in the handling of these formulæ in their Trig. and Navigation work.





A Navigation Class.

## VOCATIONAL.

## EXECUTIVE COURSE.

## Navigation and Chartwork Syllabus.

## THIRD TERM. CLASS-REMOVE.

*Revision of Properties of a Sphere, position on the Earth, etc.*

Definition of Great Circle ; small circle ; spherical Angle ; Spherical triangle ; Complement ; Supplement ; Equator ; Meridian ; Parallel of Latitude ; Latitude ; Difference of Latitude ; Nautical Mile ; Knot ; Prime Meridian ; Longitude ; Difference of Longitude ; Examples in finding the D. Latitude and D. Longitude between two places.

*Rhumb Line Sailings.*

Definition of Rhumb Line ; Departure ; Distance ; Use of Traverse Table ; in finding D. Latitude and Departure ; Relationship between Departure and D. Longitude ; Parallel Sailing ; Middle Latitude Sailing ; Construction of Mercator's Chart ; Advantages and Disadvantages ; Meridional Parts ; Mercator's Sailing.

*Day's Work.*

Definitions of observed Position ; Dead Reckoning ; Variation ; Deviation ; Compass Error ; Compass, Magnetic and True Courses ; Correction of Courses ; Leeway ; Finding the starting position from departure course ; by Traverse Table to find the Dead Reckoning Position at any time, given compass courses and errors, and run recorded by log or calculated by speed and time, making allowance for current and wind.

*Introduction to Nautical Astronomy.*

The Celestial Sphere ; Equinoctial, Celestial Meridian, Zenith ; Vertical Circle ; Correction of altitudes, Visible Horizon ; Sensible Horizon ; Dip ; Refraction ; Semi-diameter ; Augmentation of semi-diameter ; Rational Horizon ; True Altitude ; Examples in correction of altitudes of Sun, Moon and Stars, Zenith Distance and its relationship with Altitudes ; declination and its relationship with Polar Distance, Latitude by Meridian Altitude of Star, Culmination.

*Time (Solar).*

Hour Angle ; H. A. T. S. ; Apparent Time ; Aphelion ; Perihelion ; Mean Sun ; Mean Time ; Equation of Time ; " E " ; The relationship between longitude and time ; Date Line ; Conversion of Longitude from arc into time.

*Chartwork Syllabus.*

Revision of compass, a. Points and quarter points, b.  $0^{\circ}$ - $90^{\circ}$ , c.  $000^{\circ}$ - $360^{\circ}$  ; Use of Field's Rulers ; Dividers, plotting positions and measuring distances. Elementary Chart Abbreviations (New Style) ; Elementary Tides ; Springs and Neaps. H. W. ; L. W. ; Range ; Height ; Chart Datum ; Use of Bombay Tide Tables ; Elementary system of buoyage ; Construction of Mercator's Chart ; Plotting courses and bearings ; (True) Correction of Courses ; Deviation ; Variation, etc. ; Plotting of Day's work.

*Manual Syllabus.*

(Taken in four successive manual periods during Remove year.)

Parts of a sextant ; reading-old style vernier and sextant ; taking angles ; altitudes of sun.

Taking compass bearings and plotting on Bombay Harbour Chart.

## FOURTH TERM. CLASS REMOVE.

*Introduction to Celestial Position Lines.*

Revision ; Position Line ; Geographical Position ; P. L. by Meridian Altitude of Sun ; Azimuth ; P. L. by Longitude Method (Sun).

*Time (Sidereal), Star Longitude, Solar System, and Amplitude.*

Definitions of Ecliptic ; obliquity, Node, First Point of Aries ; Right Ascension, Sidereal Time, Precession of Equinoxes, Nutation, " R " ; R. A. M. formulæ ; P. L. Longitude method (star) ; Solar system ; magnitude ; " inferior " and " superior " planets ; comets ; Deviation by Amplitude.

*Chartwork and oral syllabus.*

Revision ; conversion of True into Compass Courses ; Sextant ; four adjustments, chronometer, error, care of etc.

Terrestrial Position Lines ; Line of bearing, cross bearings ; Fix by bearing and angle ; line of transit ; leading lines ; fix by bearing and distance ; fix by bearing and sounding ; fix by bearing when first sighting an object of known height ; fix by bearing and range ; transferred position line (Running Fix) ; four point bearing ; Doubling the angle on the bow.

## FIFTH TERM. NAUTICAL.

*Deviation by Time Azimuth and method of obtaining position lines.*

Deviation by Time Azimuth ; A. B. C. Tables and Davis' Tables ; P. L. Intercept Method, Sun, Star, etc., P. L. Ex-meridian Sun, Star, etc., P. L. by Polaris ; The Moon, Lunation, perigee, apogee ; conjunction, quadrature, opposition, latitude P. L. by meridian altitude of Moon, including finding the time of meridian passage, meridian altitude of planet, meridian altitude of object below the pole ; to find the time a star will cross the meridian.

*Plotting position lines, chronometer rates.*

Simultaneous altitudes ; doubles attitude with run ; examples of plotting position lines found by different methods ; longitude P. L. crossed with meridian altitude P. L. by plotting and by tables, chronometer rate problems.

*Chart work and Manual.*

Current courses ; running fix with current, vertical and horizontal danger angles ; wireless (D. F.) bearings, convergency ; tides, to calculate the approximate time of high water by means of the H. W. F. and C. Constant. Taking sights and fixing ship by cross bearings, station pointer etc. ; finding deviation by bearing of celestial objects, sound knowledge of chart of Bombay Harbour

## SIXTH TERM. NAUTICAL.

*Revision.*

Working and plotting Simultaneous Altitudes, Double Altitude with run between sights ; Use of Star Globe, Star Atlas and Pelorus ; Artificial Horizon, occultation ; Eclipse, Twilight.

*Chartwork.*

Reduction to Soundings Standard Ports. Use of Gnomonic Chart.

*Revision.***Magnetism Curriculum.***3rd Year.*

Magnets ; The Magnetic Field ; The Earth as a Magnet ; Isoclinical Lines ; Lines of Variation ; Effects of Magnetic Forces in a Ship on the Compass ; Magnetic Coefficients ; Magnetic Compensators ; Compass adjustments with use of Deviascope ; Construction of a Deviation Curve and Table of Errors.

**Meteorology Curriculum.***2nd Year.*

Composition of Atmosphere ; Atmospheric Pressure ; Motion and distribution of the Atmosphere ; Effects of Rotation of the Earth ; Buys Ballott Law ; Beaufort Scale ; Cyclonic and Anticyclonic Circulation ; Permanent Winds ; Periodic Winds ; Clouds ; Meteorological Conditions.

*3rd Year.*

Barometric Gradient ; Law of Storms ; Currents ; Weather Charts ; Wireless Weather Reports. Synoptic Meteorology.

**Naval Architecture.***2nd Year.*

Glossary of Terms ; Principal parts of a ship ; Gravity and Buoyancy ; Flotation and Stability ; Stresses and Strains ; Materials used in Ship Building ; Various types of Keels, Frames, Beams and Shell Plating ; Various types of ships.

*3rd Year.*

Further Glossary of Terms ; Tonnage ; Use of Survey Societies Register ; Ship Construction ; Ship Launching ; Displacement and Draught ; Effects of Loading ; Stability Calculation.

**Elementary Engineering Curriculum.***2nd Year.*

Elementary Electrical Terms ; Measurements and Appliances ; Principle of Internal Combustion Engine ; Principal Parts of Internal Combustion Engine, Boilers ; Fuels ; Forms of Propulsion ; The Steam Engine ; Uses of Machinery on board a ship.

*3rd Year.*

Construction of Boilers; Further description of Steam Reciprocating Engine; Turbines; Crude Oil Engines; System of Pipe Lines in a ship; Auxiliary Machinery; Refrigerating Machinery; Condensers; Problems in Marine Engineering.

**Seamanship Curriculum.***1st Year.*

Going Aloft; Boat Pulling; Bends and Hitches; Splicing light rope; Sewing, bunting and Canvas; Care of Uniform and Clothing; Boxing the Compass; Elementary Rule of the Road; Strength of Ropes and Wires; Advantages of and Power gained by Tackles.

*2nd Year.*

Boat Sailing Splicing (advanced); Elementary carpentry and bench work; Rigging of Steamships; Progressive Knowledge of the Rule of the Road; Instruments and Machinery used on board the ship; Life Boat Drill including Knowledge of Equipment, hoisting, lowering, etc.

*3rd Year.*

Practice in Machine Shop and Smithy; Elementary Electrical Work; Anchors and Cables; Parallelogram of Forces, as applied to Steamships; Effect of Screw Race; Tending Ship at Anchor; Rule of the Road.

**ENGINEERING COURSE.**

The curriculum, except in Practical Mathematics, will be the same for engineering and executive cadets in the first year.

**Practical Mathematics.***1st Year.*

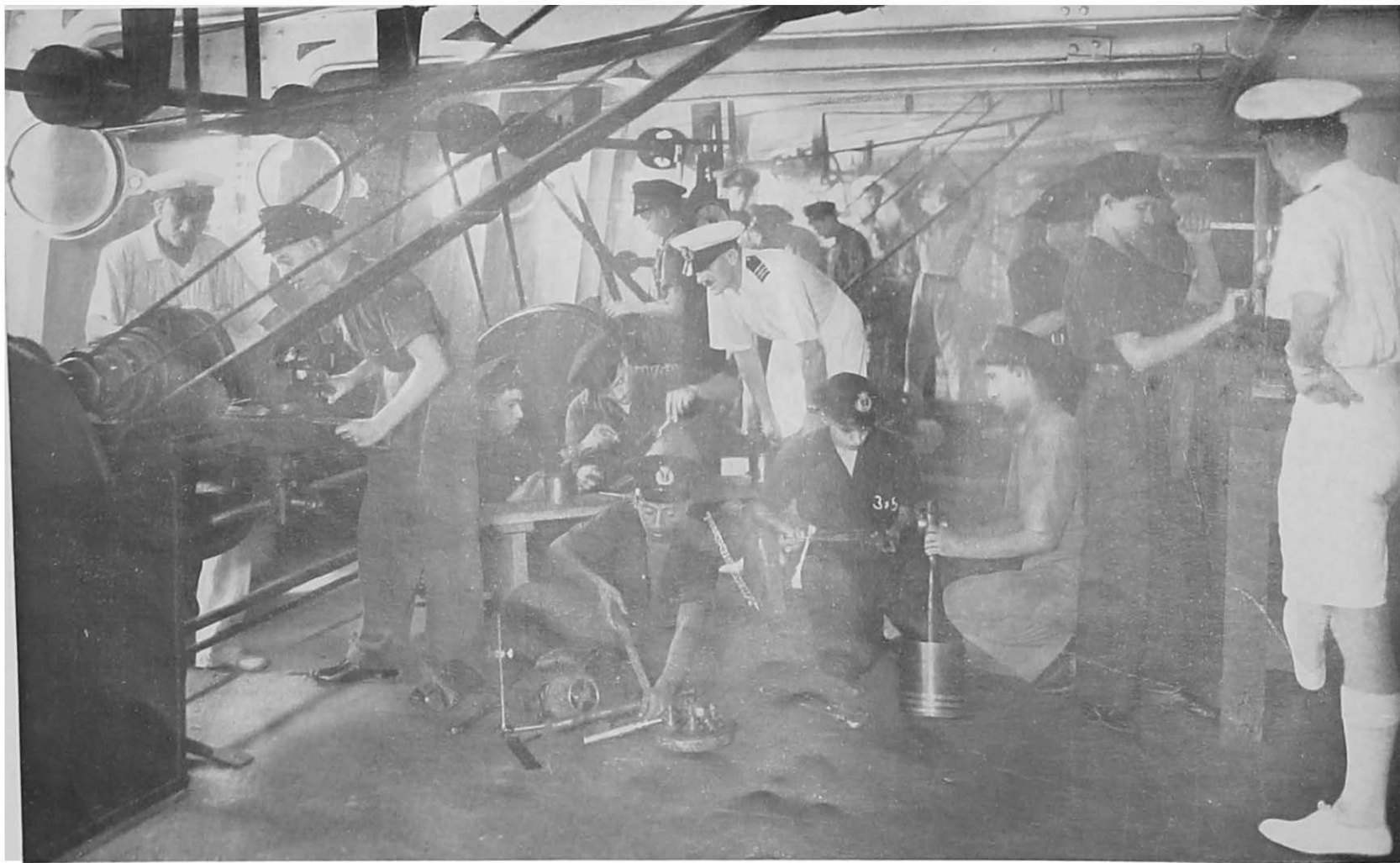
Logarithms to the base 10. How to find logs of whole numbers and of numbers less than unity; antilogarithms; use of logs for multiplication and division; roots and indices.

Trigonometry: The trigonometrical ratios, solution of right angled triangles, solution of oblique and obtuse angled triangles; proof and application of simple trigonometrical formulæ.

Mensuration of areas and volumes, regular and irregular areas and volumes by mid ordinate and Simpson's rules. Metric Conversions.

*2nd Year.***Applied Mechanics.**

Practical application of triangle and polygon of forces; Hanging chains pulleys, cranes, engine mechanisms. Practical application of principle of



Machine Shop.

moments, levers, tipping moments, change of trim, inclined planes and friction. Stress, strain, modulus of elasticity. Hooke's law, bending and torsions.

### Heat.

Nature and effect of; radiation, conduction, thermometry, units of heat. Specific heat, mixtures, latent heat of fusion and evaporation; properties of steam, superheat, dryness fraction.

### Applied Mechanics.

#### 3rd Year.

Horse power; transmission of power; brake horse power; indicated horse power; torsion meters; dynamometers; simple machines; electrical power transmission; revision.

### Heat.

Relation between pressure, volume and temperature. Indicator cards:— Steam, diesel, semi-diesel, air compressors; Rankine Cycle; Otto Cycle; Diesel Cycle, measurement of power. Refrigeration; steam consumption; boiler density problems; propulsion and consumption problems.

### Engineering Knowledge.

#### 2nd Year.

*Properties of metals*: manufacture of pig iron; wrought iron; steel alloys; case hardening and tempering. Working principles of power boats and ship's generators. *Scotch Boilers*: design and construction, riveted joints; water tube boilers. *Steam reciprocating engines*, construction design and operation. *Valves and valve gear*. *Cylinder ratios*.

#### 3rd Year.

*Marine engine auxiliaries*. Condensers, air pumps, fuel pumps; heaters; evaporators; *Turbines*, construction design and operation impulse; reaction and turbine gearing. *Diesel engines*, construction and operation, 2 stroke, 4 stroke, opposed piston, solid and blast injection. *Ship construction, propellers*. *Electricity and magnetism*. Dynamos and motors; electrical instruments; *Refrigeration*; revision.

### Mechanical Drawing.

#### 1st Year.

Use of instruments; exercises with set squares; compass etc., scales and scale drawing. Free hand drawing and dimensioning.

#### 2nd Year.

Harder problems on tangents, curves, involute, cycloidal and epicycloidal cams; orthographic projection of points and lines. True length of lines; projection of simple solids. Sections of simple solids; the ellipse; conic sections; the hyperbola and parabola; intersections of solids; isometric projection; the Helix; Threads.

#### 3rd Year.

Machine drawing from models and free hand sketches of engine and boiler parts; tracing.

## Manual.

### *2nd and 3rd Years.*

Fitting and machine tools ; types of chisels ; scrapers ; files ; ruler ; calipers ; verniers ; micrometers , etc. Tool making, forging , tempering, riveting, soldering. *Machines.* Construction and operation of lathes ; planing machines ; milling etc. Simple exercises promoting the use of fitting and machine tools.

Dismantling and assembling of " Dufferin " machinery and boilers.

### Working Parties.

In addition to manual periods, from 0615 to 0830 hours, there will be one Top on engine room maintenance per day. One top consists of 25 cadets —12 E. and 12 X., Juniors, Removes and Nauticals.

Their work will consist of general cleaning of engine and boiler room, workshops and science rooms, chipping, painting and scaling. Upkeep of power boat engines, generators, workshop machinery, spare parts and tools. There are six tops and each is on maintenance duty for 14 days.

### Watch Keeping.

One Nautical E. will keep watch on power plant for 8 hours per day.

One Remove E., and one Junior E., will act as a engine driver and messenger respectively on power boats.

Watch keepers change daily.

### First Aid Lectures for all Cadets.

#### *First.*

Outlines and Principles of First Aid ; Description and structure of Human Body ; General description of Heart and Blood Vessels ; Circulation of the Blood

#### *Second.*

Wounds and Hæmorrhages ; Special and Internal Hæmorrhages ; Situation of Main Arteries ; Compression of Arteries ; Pressure Points.

#### *Third.*

Fractures causes, Signs and Symptoms ; The Triangular Bandage, its application to the various parts of the body.

#### *Fourth.*

Individual Fractures, Signs and Treatment ; Dislocations, Sprains and Strains, Symptoms and Treatment ; Practical treatment of Fractures.

#### *Fifth.*

Respiration, Natural and Artificial ; Asphyxia ; The Nervous System ; Insensibility ; Practice Artificial Respiration.

#### *Sixth.*

*Miscellaneous Injuries ; Poisons.*—In the fifth term of training, Special Classes are arranged and Cadets are examined by the St. John Ambulance Association.



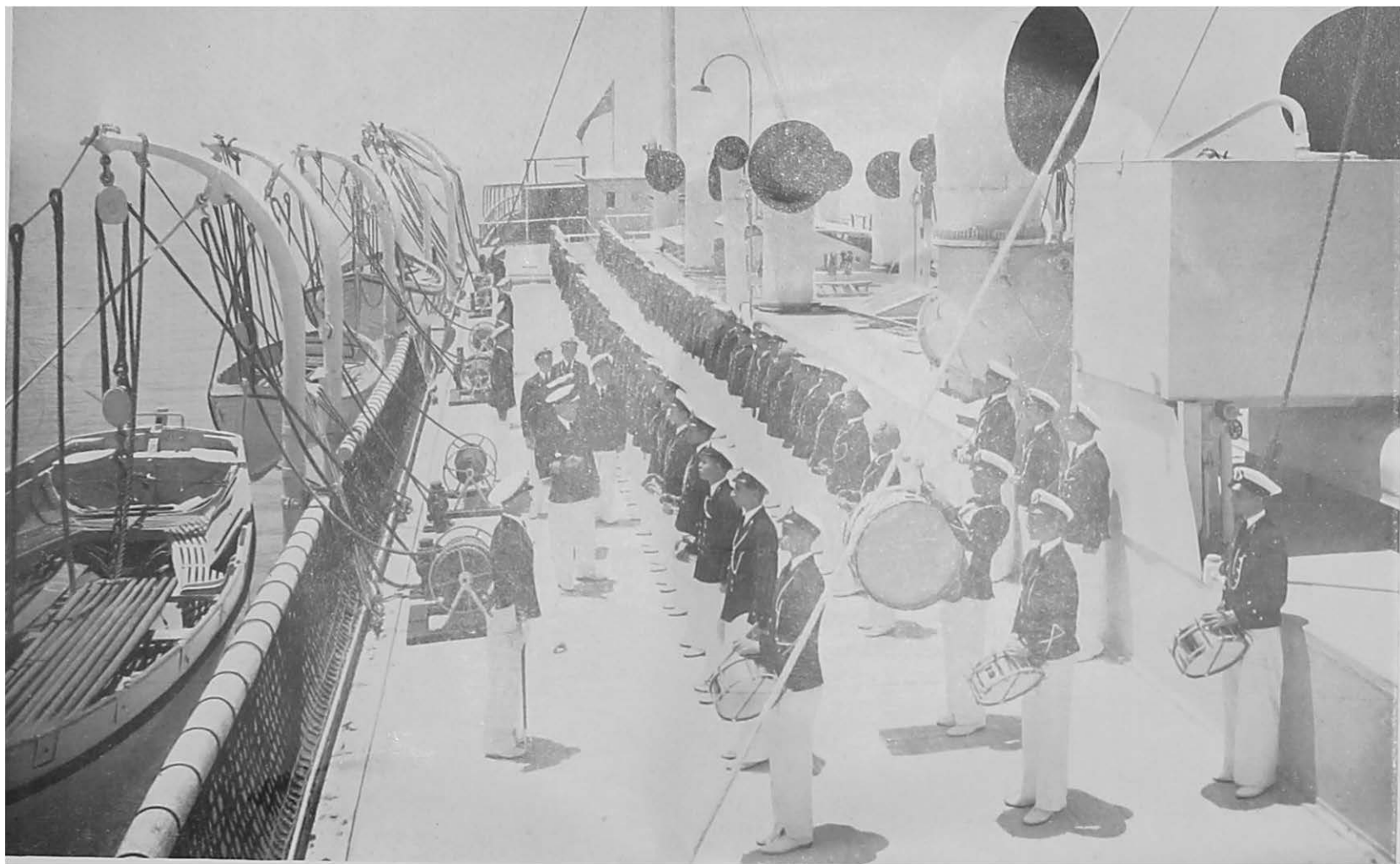
**Routine.**

- 0550 Call Chief Cadet Captain and Bugler. *Saturday.*—No School work, the ship is cleaned and manual work done by the Cadets.
- 0600 Reveille. Make Beds. One Watch Aloft. Away Bazaar Boat.
- 0620 Fall-in 5 minutes for Prayers. Clean Ship. *Sunday.*—Division and Captain's Rounds at 10-30.
- 0720 Change for P. T. Wednesday, Cadets change for Manual.
- 0730 P. T.
- 0755 Bath and change. Every Sunday each Cadet during the course of the day is obliged to write home.
- 0810 School.
- 1850 Breakfast.
- 0930 School.
- \*\*1055 Divisions. Wednesday, bath and change.
- 1130 School.
- 1245 Dinner.
- 1330 School.
- 1450 Break.
- 1500 School.
- 1620 Fall in. Detail activities. On religious holidays, facilities are granted to land Cadets for their religious duties as necessary.
- 1630 Tea. Change for games.
- 1650 Land for games. Deck activities. Gymnasium, Boxing, general Recreation.
- 1820 Cadets on board. Bathe and change.
- 1845 Signals.
- 1910 Evening Quarters.
- 1920 Supper.
- 1945 Canteen opens.
- 2015 First Post.
- 2100 Fall-in 5 minutes silence for Prayer. Turn in. Rounds.
- 2115 Last Post. (Nautical Voluntary prep. in Recreation Room only).
- 2145 C. C. C. to report all cadets turned in. *Boat Routine.*—From Mazgaon. Pier to Ship; 07-00, 09-00, 12-30, 17-00, 21-00.  
From Ship to Mazgaon Pier, 06-00, 08-40, 12-10, 16-30, 20-15.

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\*\*Monday—Public Reading; Tuesday—Divisions, Wednesday—Stand Easy; Thursday—Divisions; Friday—General Quarters.

Cadets in Nautical Form may remain up till 21-45.



**Divisions.**

**APPENDIX I.**  
**SPECIMEN MENU.**

MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.	SUNDAY.
<b>CHOTA HAZRI—</b> 06-00 Coffee and Biscuits.	Coffee and Biscuits.	Coffee and Biscuits.	Coffee and Biscuits.	Coffee and Biscuits.	Coffee and Biscuits.	Coffee and Biscuits.
<b>08-45</b> <b>BREAKFAST—</b> Liver and Potatoes *Dhall Pan Cakes.  Bread and Butter. Fruit. Tea.	Porridge.  Bread and Butter. Fruit. Tea.	Fish Cakes. *Purries. Bread and Butter. Fruit. Tea.	Fried Liver and Onions, and Purries. Bread and Butter. Fruit. Tea.	Oatmeal.  Bread and Butter. Fruit. Tea.	Eggs Sandwiches, *Tomatoes Sandwiches. Fruit. Tea.	Buttered Eggs. *Dhall and Potatoes. Bread and Butter. Fruit. Tea.
<b>13-00</b> <b>DINNER—</b> Onion Soup. Mutton Pie and Vegetables. *Vegetable Pie Blancmange with Treacle.	Scotch Broth. Mixed Vegetable. Curry and Rice. ..... Bread and Butter. Pudding.	Pea Soup. Irish Stew.  *Delhi Stew. Queen Pudding.	Lisbon Soup. Dhall, Curry and Rice.  Ice Cream.	Hotch Potch Soup. Fish Cakes and Vegetables. *Vegetables Sausages. Fruit Jelly.	Pea Soup. Mutton Cutlets and Vegetables. *Dhall Kubab.  Ice Cream.	Jardinniare Soup. Roast Mutton and Vegetable. *Curry Puffs.  Vermicelli pudding.
<b>18-20</b> <b>SUPPER—</b> Omlette and Potatoes. *Vegetables Cutlets. Bread and Butter. Jam. Tea.	Mutton Cutlets and Vegetables. *Dhall Cutlets. Bread and Butter. Treacle. Tea.	Croquettes and Vegetables. *Vegetables Patties. Bread and Butter. Jam. Tea.	*Devielled Mutton and Vegetable. *Vegetable Kubab. Bread and Butter. Treacle. Tea.	Chicken Cutlets and Vegetable. *Vegetable Moulie. Bread and Butter. Jam. Tea.	American Hash and Vegetable. *Delhi Stew. Bread and Butter. Treacle. Tea.	Scotch Mince and Vegetable. *Dhall Cutlets. Bread and Butter. Jam. Tea.
<b>20-15</b> MILK 4 oz.	MILK 4 oz.	MILK 4 oz.	MILK 4 oz.	MILK 4 oz.	MILK 4 oz.	MILK 4 oz.

\*Denotes Vegetarian food.

## APPENDIX II.

## EXTRACT OF REGULATION REGARDING EYE-SIGHT TEST.

*(For Executive Cadets.)*

## I.—Letter Tests.

1. *Letter test to be passed first.*—The first test which the candidate is required to undergo is the letter test and until he has passed this test he must not be allowed to proceed further with the Examination.

2. *Apparatus used.*—The letter test to be used for all candidates is that conducted on Snellen's principle by means of sheets of letters.

3. *Object of the test.*—The object of the letter test is to determine whether the candidate can reach a sufficient standard of visual acuteness, or in other words, to find out whether his eye-sight is good or bad.

4. *Standard of vision required.*—Every candidate for a first class certificate of competency will be required to possess normal vision.

"Normal vision" is defined, for the purpose of these regulations, as ability to read correctly nine out of the twelve letters in the sixth line and eight of the fifteen letters in the seventh line of a test sheet placed in a good light at a distance of 16 feet from the eye.

The candidate will have to pass using either eye separately and both eyes together.

Squint or morbid condition of the eyes or eye-lids subject to the risk of aggravation or recurrence in either eye will cause rejection of the candidate.

5. *Spectacles not allowed.*—During the examination in the letter test, candidates must not be allowed to use spectacles or glasses of any kind, or any other artificial aid to vision.

6. *Method of testing.*—The test sheets should be hung on the wall, in a good light but not in direct sunlight, at a height of five or six feet from the ground. The candidate should be placed at a distance of exactly 16 feet, from the sheets, and exactly opposite them. This distance should be carefully measured, and should never in any circumstances be varied.

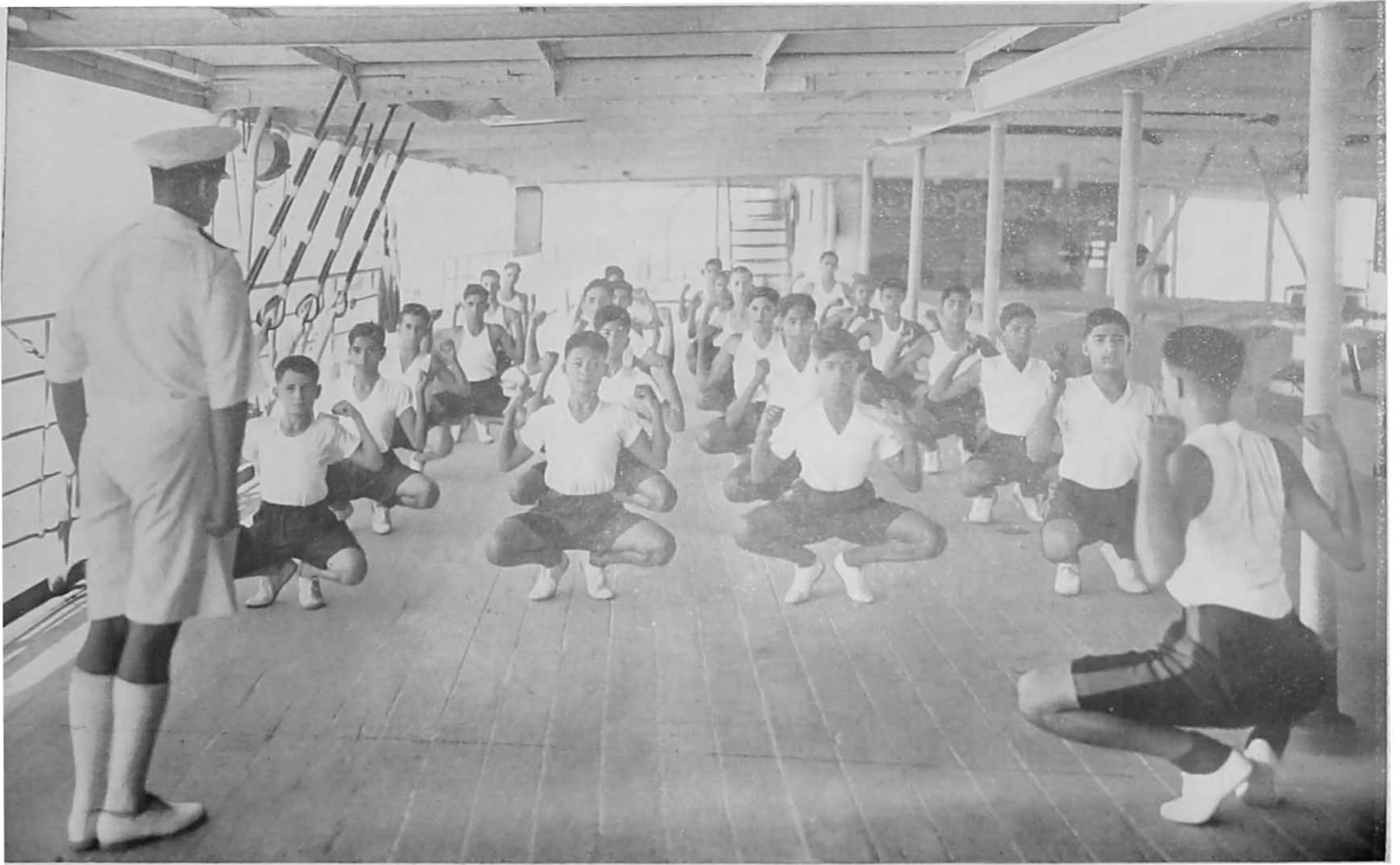
One of the sheets should then be exposed, and the candidate should be asked to read the letters on each sheet, beginning at the top and going downwards. Any mistake which he makes should be carefully noted. If then it is found that he has read correctly at least nine letters in the sixth line and eight letters in the seventh line of a sheet, the candidate may be considered to have normal vision.

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Note No. 1.—Candidates are also examined for colour blindness and this examination is held by means of a lantern showing red, green and white (with large and small apertures) in a dark room.

Candidates must clearly distinguish between red, green and white.

Note No. 2.—The attention of parents and guardians is invited to the fact that the standard of eye-sight test for the Engineering course, given in Appendix III, page 45, is lower than that required for the Executive course, and that any candidate, failing in the Mercantile Marine Department Eye-sight test for the Executive course, has still a good chance of passing for the Engineering course.



**Physical Training.**

## APPENDIX III.

## STANDARD OF EYE-SIGHT TEST.

*(For Engineering Cadets.)*(1) *One eye* ..  $V = \frac{3}{9}$ ;  $D = 0.6$ *Other eye* ..  $V = \frac{6}{12}$ ;  $D = 0.6$ 

in both cases without glasses.

(2) Colour vision should be sufficiently good to distinguish the primary colours—red, green, yellow and blue.

(3) There should be a full field of vision in each eye.

(4) Squint or any morbid condition of the eyes or eye-lids subject to the risk of aggravation or recurrence in either eye will cause rejection of the candidate.

(5) The examination will be conducted by a qualified Medical Officer.

## APPENDIX IV.

I.M.M.T.S. "DUFFERIN".

## Syllabus of the Qualifying Examination.

*Arithmetic.*—Compound rules, simple and compound proportion. Simple interest, compound interest, decimal fractions (without recurring decimals), Practice. Simple examples in profit and loss. Metric system (linear). Percentages. Square measure. Square root.

*Algebra.*—Generalised arithmetic. Substitution. Easy addition, subtraction, multiplication, division. Use of brackets. Simple equations.

*Geometry.*—Use of drawing instruments (a ruler graduated in inches and tenths, and in centimetres and millimetres; a set square; a protractor; a pair of compasses). Measurement of length and of angles of arcs. Simple and easy exercises in paper folding. Names and definitions of plane figures. (Applicants should bring their own instruments.)

*English.*—Simple grammar including parsing. Conversion of poetry into prose order. Analysis of simple sentences. Rendering in the pupil's own words of easy narratives read out to him. Writing to dictation.

*History.*—A very general outline of the history of India and of England to the present time (as in Marsden's "Easy Lessons in History published by Macmillan's").

*Geography.*—The world: climatic regions, distribution of vegetation.

The British Isles, France, Germany, Italy, the United States, and Japan.—The study to include only coast, relief, climate, agriculture, broad divisions, the most important towns, people and their occupations.

*India.*—Important natural and manufactured products; exports, imports and the principal countries with which trade is carried on.

*General.*—Heating and cooling of land and water; heating of air; land and sea breezes; climate by distance from the ocean; oceanic and continental climates.

Observation of the constellations (the Great Bear, the Little Bear, Orion, the Bull).

Learning to read a barometer. Drawing the true north and south line by observing the Pole Star and by the Mariner's Compass; filling in particulars in an outline map of India.

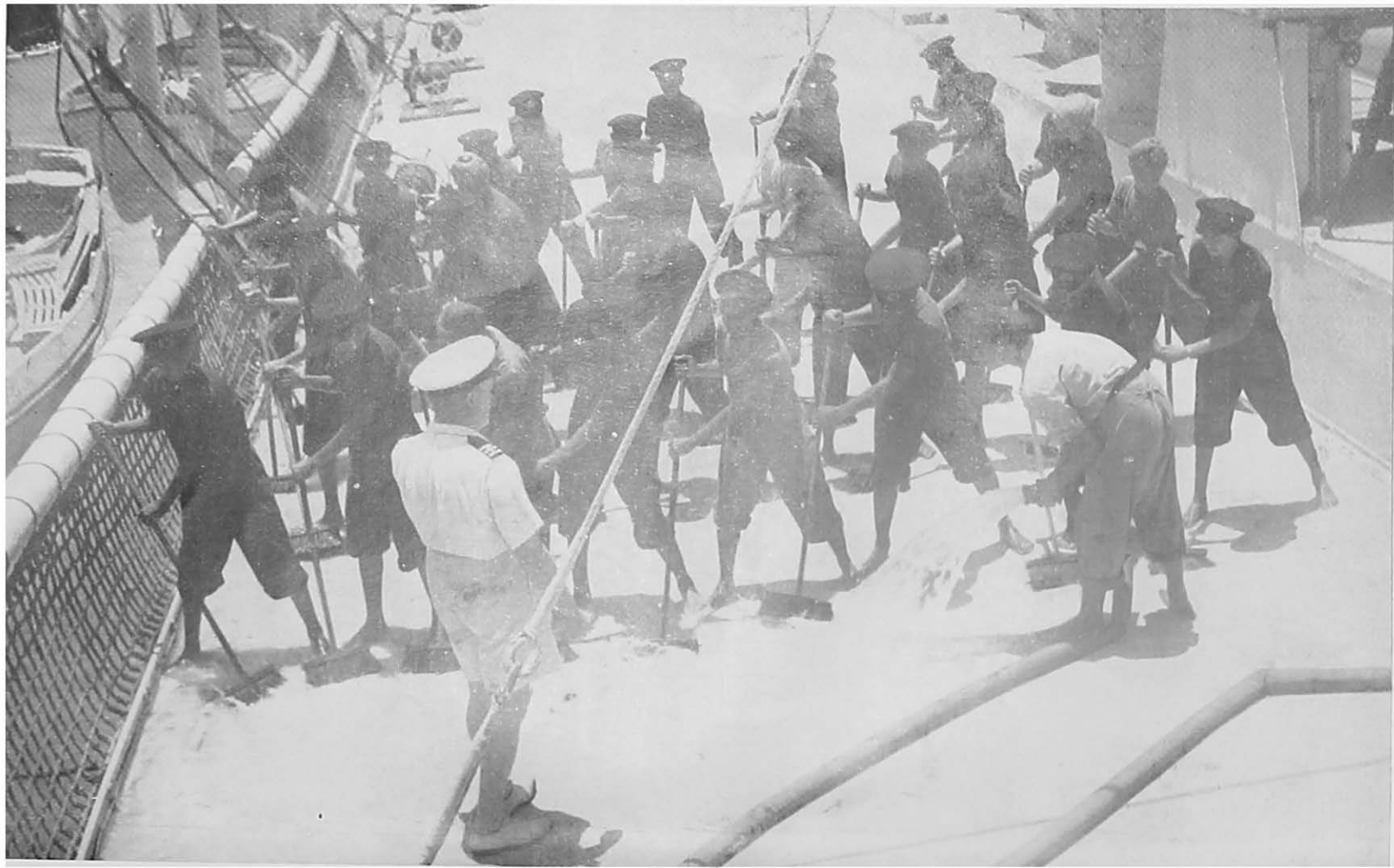
*General Knowledge.*—A paper will be set to test the general knowledge of the candidates.

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(*N.B.*—General knowledge cannot be acquired from a Text Book, and no such book can be recommended. Candidates should keep their eyes and ears open, make themselves acquainted with current world-wide events as reported in the Press, and develop their intelligence; as would-be sailors they should cultivate such elementary knowledge of the sea as can be obtained from Newspaper advertisements and story books of adventure.)

*N.B.*—*Qualifying Examination papers.*—Question Papers set in 1936 and 1937 are given in the Appendix No. V. Question Papers for the Examinations previous to those are not available.

*N.B.*—All answers are to be written in English.



Washing Down.



## APPENDIX V.

**SPECIMEN PAPERS FOR  
QUALIFYING EXAMINATION PRIOR TO SELECTION FOR ADMISSION  
TO THE I.M.M.T.S. "DUFFERIN".**

1936.

## TIME TABLE.

## MONDAY, 2ND NOVEMBER 1936.

11-00 A.M. to 2-00 P.M.	..	..	.. Arithmetic and Algebra.
3-00 P.M. to 5-00 P.M.	..	..	.. English Grammar.

## TUESDAY, 3RD NOVEMBER 1936.

11-30 A.M. to 1-00 P.M.	..	..	.. Geometry.
2-00 P.M. to 3-00 P.M.	..	..	.. General Knowledge.

## WEDNESDAY, 4TH NOVEMBER 1936.

11-00 A.M. to 1-00 P.M.	..	..	.. History and Geography.
2-00 P.M. to 3-00 P.M.	..	..	.. English Composition.

INSTRUCTIONS to be noted and observed by the Candidates :—

The candidate should mark only the Qualifying Examination Serial No. and Letter allotted to him on the *top right-hand corner of each answer sheet or book* and on no account should the name of the candidate appear anywhere on the answer books. Any answer papers with the name of the candidate on it will be disqualified.

The candidates will be informed of their results either by telegram or by letter as early as possible, but not later than 7th December 1936. Should any candidate not receive his result by that date he should communicate at once to the Secretary, Governing Body, I.M.M.T.S. "Dufferin", Mazagaon Pier, Bombay, 10.

Candidates who attain the required standard in this Examination will be invited to come to Bombay, at their own expense, for the Medical Examination, Eye-sight Test, and interview and selection by the Governing Body. The place where and the date on which they should report in Bombay for this purpose will be notified to them in due course. It will be during the first fortnight of January 1937.

The New Term opens on January 10th, 1937.

## MONDAY, 2ND NOVEMBER 1936.

[11 A.M. TO 2 P.M.]

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

*N.B.*—The time should be equally divided between the two parts of the paper.

## PART I.

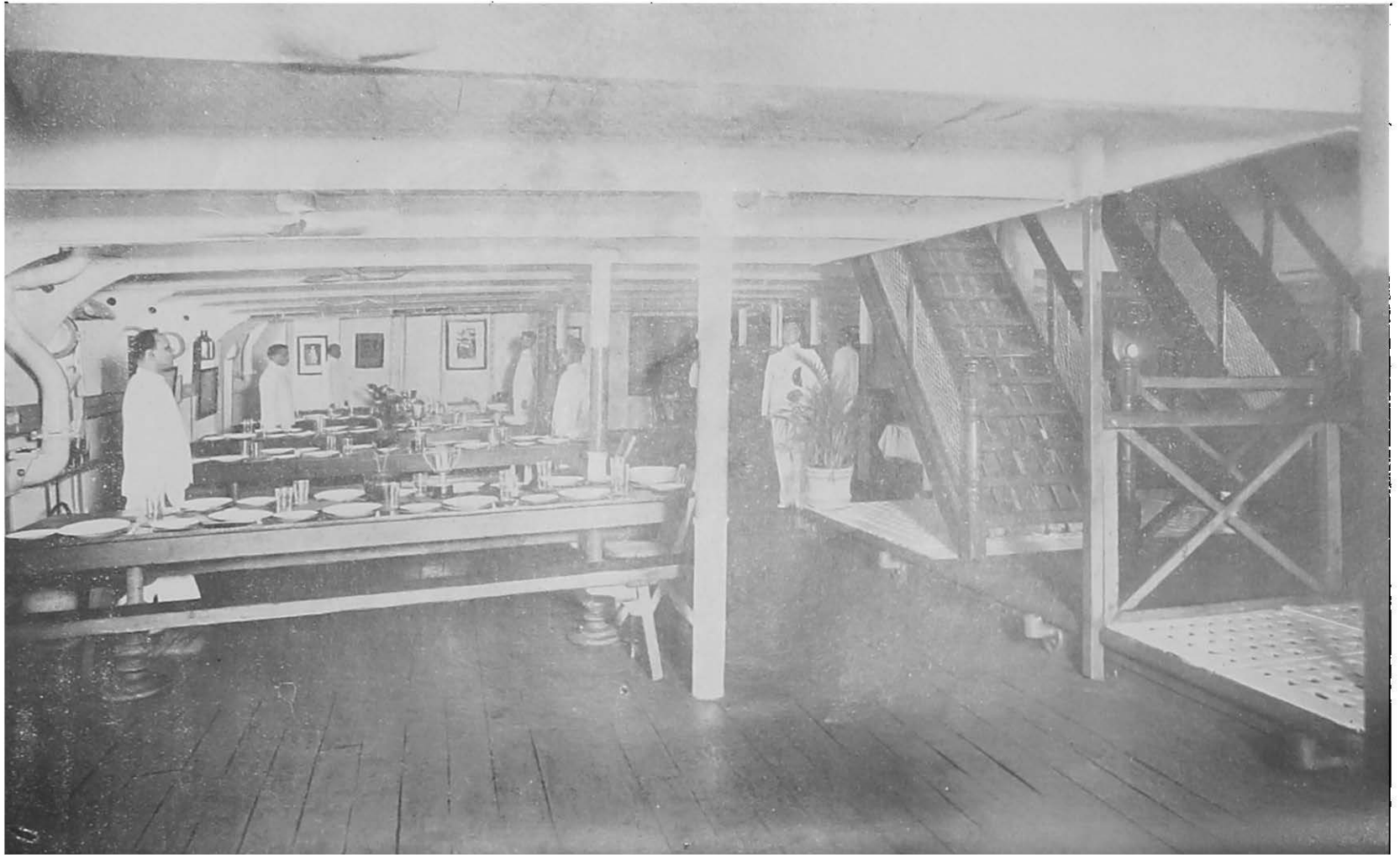
## ARITHMETIC.

- |  | Marks. |
|--|--------|
| 1. (a) Find the L. C. M. of 24, 36, 60, 75 and 90.   | 2      |
| (b) Find the G. C. M. of 1122 and 1980.  | 2      |
| 2. (a) A and B enter into partnership. A contributes Rs. 600 and B 5 Rs. 1,000. If the total profit is Rs. 240, how should it be divided between them ?  | 5      |
| (b) If 120 men can build a wall 60 feet high in 15 days, how many men will be required to build a wall 55 feet high in 10 days ?   | 7      |
| 3. By selling four dozen mangoes for Rs. 13, it was found that three-tenths of the cost price was gained. At what price per mango ought they to have been sold to have gained 60 per cent.   | 9      |
| 4. A room is 30 feet long, 20 feet broad, and 12 feet high. Find the cost of painting its walls at three shillings per square yard, not including a fire-place 5 feet by 3 feet, a door 8 feet by 5 feet, and a window 5 feet by 4 feet. | 9      |
| 5. (a) In what time will £586 amount to £673-18-0 at $2\frac{1}{2}$ per cent. per annum, simple interest ?   | 8      |
| (b) Find the compound interest on £500 for 4 years at 4 per cent. per annum, to the nearest pound.   | 8      |

## PART II.

## ALGEBRA.

- |   |    |
|---|----|
| 1. Write down three consecutive number of which $a$ is the smallest.  | 5  |
| If I walk $x$ miles in 4 hours, how many miles do I walk in 1 hour ?<br>How many do I walk in $y$ hours ? How long will I take to walk one mile ?<br>How long will I take to walk $y$ miles ? | 4  |
| 2. (a) Find the product of $x^2 + 2x + 3$ and $x^2 - 2x - 5$ .  | 4  |
| (b) Divide $6x^3 + 2x^2 + 11x - 10$ by $3x - 2$ .   | 6  |
| 3. (a) Simplify the expression—   |    |
| $5[3x - 2(1 - 3x) + \frac{1}{x} \{ 3 - (4 - x) \} + 2]$ .   | 3  |
| (b) Find the factors of $a^2 + 2ab + b^2$ ; $a^2 - 2ab + b^2$ ; $a^2 - b^2$ .   | 6  |
| 4. Solve the equations :—   |    |
| (a) $2(x - 6)(x + 6) + 12 = (2x - 1)(x - 3)$ .  | 6  |
| (b) $\frac{x + 7}{3} - \frac{3x}{5} = x - 2 - \frac{1}{2}(3x - 11)$ .   | 8  |
| 5. A man buys 15 copies of a book for £3-3-0, some of them bound in leather at 5 shillings each, and the rest bound in cloth at 3 shillings each. How many of each kind did he buy ?          | 14 |



**Cadets' Messroom—Starboard Side.**

MONDAY, 2ND NOVEMBER 1936.

[3 P.M. TO 5 P.M.]

**ENGLISH GRAMMAR.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

**Marks.**

1. Write sentences, two for each word, shewing how the following words can be used as different parts of speech :—  
better ; stir ; little ; near. 8
2. Rewrite the following in correct English :— 14
  - (a) I take meals at my house.
  - (b) He has taken admission into the school.
  - (c) I said to him that you have done wrong.
  - (d) I and John and you will go home.
  - (e) He said that " I will come ".
  - (f) I was received at the station by three of my family members.
  - (g) I am ill since two days.
3. Analyse the following sentences :— 15
  - (a) Have *you* had any rain *in* your neighbourhood ?
  - (b) The *successful* candidate appeared pleased with his results.
  - (c) His best *friend* *often* gave him *good* advice.
4. Parse the words italicised in Question 3, namely, you ; in ; successful ; friend ; often ; good. 12
5. Rewrite the following sentences, filling in each blank with a suitable preposition :— 13
  - (a) He is taller than you——two inches.
  - (b) He has a bad habit——arguing——other persons——trifles.
  - (c) The ship sailed——the Suez Canal.
  - (d) You must apologise——him——what you have done.
  - (e) The boy appeared——the magistrate, charged——having thrown a stone——a passer-by.
  - (f) I am angry ——him——having failed——his examination.
6. Some of the following words are spelt correctly, others incorrectly. Write them all in their correct form :— 20

Aukward, beleive, seige, merciless, preperation, wellcome, accidntly, marrage, pleasent, loveable, noticable, referred, excellent, swimming, monkies, magnificent, gaurd, happened, begining, centuary.

7. Explain how the following are incorrect :—

- (a) My friend is taller than me.
- (b) You saw that he will fail.
- (c) While looking in the cupboard, suddenly the door banged.
- (d) I will drown and no one shall save me.
- (e) That is the story he told to you and I.
- (f) Neither Tom nor Jack have won the prize.

TUESDAY, 3RD NOVEMBER 1936.

[11 A.M. TO 1 P.M.]

**GEOMETRY.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

Mark.

1. Draw a straight line  $MN$  of any length. In it take any point  $H$  and draw  $AH, BH, CH, DH, EH, FH$ , so as to make with  $MN$  angles of 25, 45, 60, 90, 110 and 150 degrees respectively.

Name an acute angle, a right angle and an obtuse angle.

How many degrees are there in the angle  $AHE$  ?

2. A triangle  $ABC$  has to be drawn, the following being given :—

$AB = 7$  c.m.,  $AC = 5$  c.m., angle  $ABC = 35$  degrees.

Are these data sufficient to fix the size of the triangle ? If so, construct it ; if not, construct triangles of different sizes from these data.

Measure  $BC$  in each case and compare the results.

3. Write a definition of each of the following :—

(a) A plane figure ; (b) A point ; (c) A straight line ; (d) A hypotenuse ; (e) A circle.

Why is a star not a point ?

Why is a piece of string not a straight line ?

4. A gun whose range is 5,000 yards is in position at a point 3,500 yards from a straight railway line. Find by measurement along what distance approximately a train on the railway line would be in danger of being hit by the gun.

Draw a figure, scale 1 inch = 1,000 yards, to illustrate your answer.

Marks.

5. You want to measure the width of a river which you cannot cross. You fix a point *A* on the north bank of the river, and choose an object *E* immediately opposite (*i.e.*, due south of you) on the other bank. You then walk due east for 200 yards to a point *B*, and continue in the same direction for another 200 yards to a point *C*. From *C* you walk due north until you reach a point *D* from which the points *B* and *E* are in the same straight line. You find that the distance from *C* to *D* is 150 yards.

What is the width of the river ?

Draw a figure, scale 1 inch = 100 yards, and prove your answer.

TUESDAY, 3RD NOVEMBER 1936.

[2 P.M. TO 3 P.M.]

**GENERAL KNOWLEDGE.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

Marks.

Answer any *four* of the following questions:—

12

- (a) Give approximately the fastest speed of a passenger ship.  
At about what speed does a cargo ship travel ?
- (b) Name the largest British ship. What is her tonnage ?  
Between what countries does she run ?
- (c) Name four ships of the Royal Indian Navy.
- (d) What are the principal cargoes carried by ships (i) from India to Europe, (ii) from Europe to India ?
- (e) Explain briefly how the propeller makes a ship move.
- (f) Draw simple figures of a propeller, an anchor, a ship's steering-wheel, a rudder.
- (g) By what steamship line would you travel to (i) Rangoon, (ii) China, (iii) Australia, (iv) Jeddah, (v) East Africa ?
- (h) What is a pier, dock, pilot, dry-dock ?
- (i) About how many Deck Officers and Engineer Officers does a cargo ship carry ?

Answer any *one* of the three parts A ; B ; C of this question.

14

A. Point out what you consider wrong in the following:—

- (i) Feed your dog as you would feed your friend.  
Give him Brown's dog biscuits.
- (ii) House and shop for Sale ; excellent position ; tenant under notice to expire at end of March.
- (iii) Why kill yourself with window-cleaning ? Let us do it for you.

B. In the following passage, some of the words have had their letters re-arranged, e.g., lapy = play.

Write out the whole passage in correct form :—

A general was once talking to one of his soldiers, an Irishman. "Well, my good *lewlof*," said the *lageren*, "and *thaw* did you do to leph us to gain the *yortvic*?" "I walked *dyllob* up to one of the enemy and cut off his *etef*," *dielpre* the soldier. "Cut off his *eset*! Why did you *ton* cut off his *dahe*?" said the *nageler*. "Ah your *norhou*, that was off *leadray*."

C. Answer any four of the following :—

- (a) Why is it easier to float in salt water than in fresh water ?
- (b) When the powder in a cartridge is set on fire, why is the bullet sent out with great force ?
- (c) What are the forces which cause tides ?
- (d) Why is it necessary to transplant rice ?
- (e) Why are Indian cattle often small and thin ?
- (f) What does Government do with the taxes it collects ?
- (g) Why does a speed-boat travel much faster than an ordinary motor-boat ?
- (h) Why does a fountain-pen filler draw up ink ?
- (i) To drive a screw into wood, which way would you turn it ? What advantage has a screw over a nail ?

3. Answer any four of the following :—

- (a) How did the League of Nations try to prevent Italy from conquering Abyssinia ? Why did it fail to do so ?
- (b) What great service to agriculture is the Viceroy doing ?
- (c) What was the result of this year's Mt. Everest expedition ? What were the reasons ?
- (d) Name six members of the Indian cricket team which visited England. What have been the results of the Tests ?
- (e) Give a very brief account of recent events in Spain.
- (f) What is meant by "the Olympic Games" ? What victory did India win in them ?
- (g) Describe a disaster which happened to a ship in July off the coast of India.
- (h) What sort of monsoon has India had this year ?
- (i) What great flight has been recently carried out by a woman ? Why was it especially difficult ?

4. Answer any four of the following :—

- (a) Give the weight of a cricket ball, a hockey stick, a tennis racket. Give the length of a cricket-pitch, a football field, a hockey field.
- (b) Write in full :—M.L.C., K.C.I.E., P.S., S.S., P.T.O., R.S.V.P., P.W.D., S.W.
- (c) What is a Provident Fund, an Insurance Policy, a cheque, a receipt ?
- (d) Explain very simply how the following are made to move :— a bicycle, a motor car, a locomotive, an aeroplane.
- (e) What are the rates for a telegram in India, a letter to England, a letter in India, a railway journey in India second class.
- (f) Name any four great buildings in India. Describe very briefly one of them.
- (g) What do you know of the Khyber Pass, the Sukkur Barrage, the Taj Mahal, the Western Ghats ?

WEDNESDAY, 4TH NOVEMBER 1936.

[11 P.M. TO 1 P.M.]

### HISTORY AND GEOGRAPHY.

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

*N.B.*—Answer any four questions in each part. The time should be equally divided between the two parts.

All the questions carry equal marks.

#### PART I.

#### HISTORY.

[Full Marks—50.]

1. In what ways did the character of Sher Shah (Sher Khan) differ widely from that of Jehangir ?

2. Write a short account of how Shivaji made himself ruler of the Mahrattas. What conquests did he make ?

3. What were the causes which led to the fighting between the British and the French in India ? Give a brief account of the career of Robert Clive.

4. Write short notes on (a) Pitt's India Bill, (b) The Permanent Settlement of Bengal, (c) Dupliex.

5. During the reigns of the Tudor Monarchs, England became more powerful, more wealthy, and better educated than she had ever been before. What were the chief events which brought this about ?

6. Write a short life of George Stephenson. How has his work helped to increase the prosperity of India ?



## PART II.

## GEOGRAPHY.

[Full Marks—50.]

2. What are the chief causes which affect climate? Describe in detail one of these causes.

2. Name six of the chief ports of Great Britain, and in the case of each state one of the chief imports and one of the chief exports.

3. (i) Where are the following found in India:—

(a) Gold, (b) Coal, (c) Copper and Iron?

(ii) What parts of India are watered by great Irrigation Works? State briefly how this irrigation is carried on.

(iii) What conditions of water, soil, and climate are necessary for the growing of (a) Wheat, (b) Cotton, (c) Rice?

4. Draw a sketch map of India, and on it shew—

(a) the most densely populated parts,

(b) the regions that receive the heaviest rainfall,

(c) the regions where there is little or no rainfall,

(d) the positions of Delhi, Peshawar, Madras, Karachi.

5. In what countries are the following towns situated:—

Lisbon, Madrid, Marseille, Antwerp, Genoa, Berlin?

State the reason for the importance of each of these towns.

6. What is a barometer? Account for the barometer falling when bad weather is approaching. Draw a simple illustration of a barometer, and from it explain how to read the barometer.

WEDNESDAY, 4TH NOVEMBER 1936.

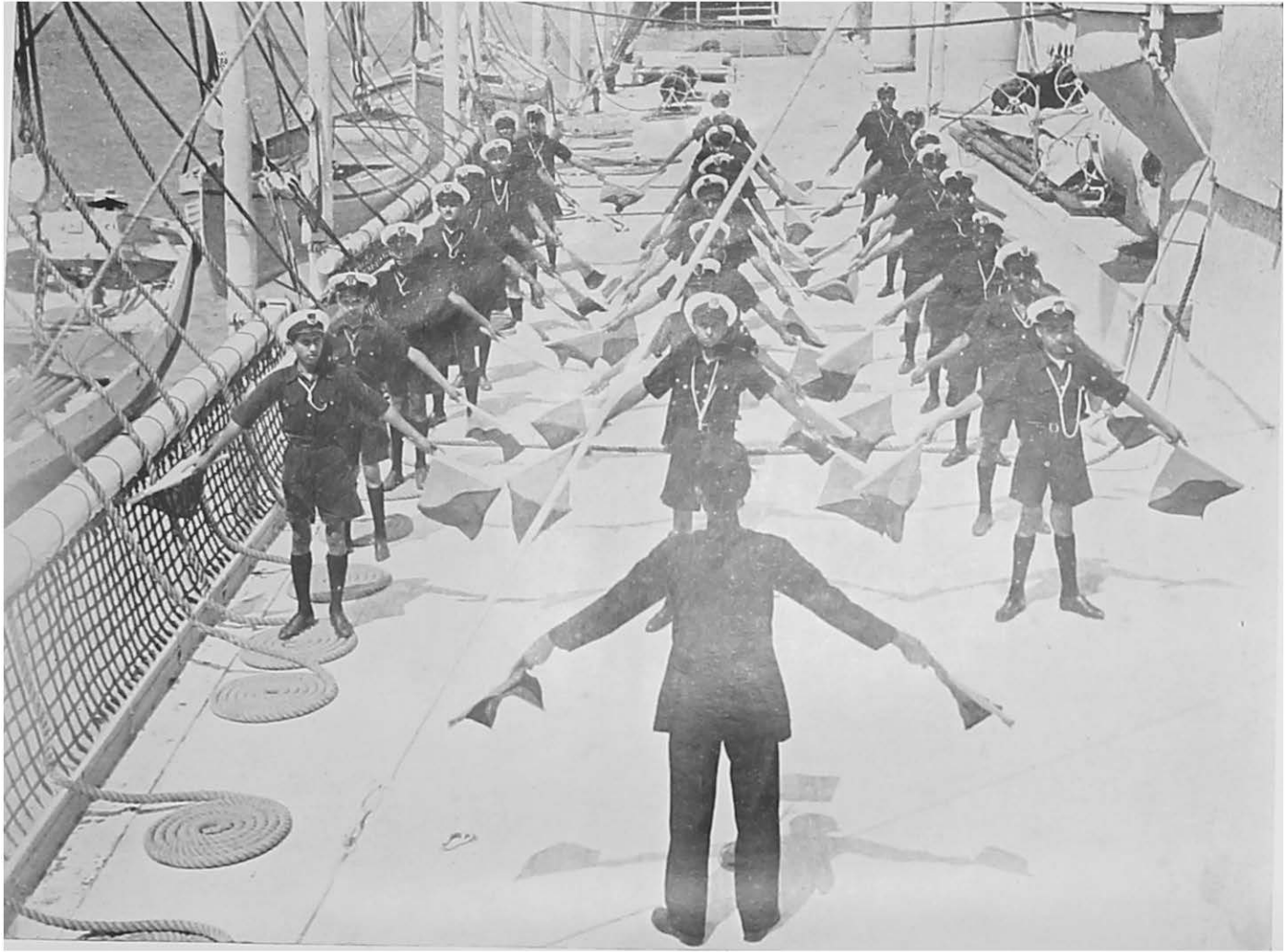
[2 P.M. TO 3 P.M.]

[Full Marks—50.]

## ENGLISH COMPOSITION.

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer book. His Serial Number and Letter must be written on each page.

*N. B.*—The story should first be read aloud slowly to the candidates, and again a second time at an ordinary reading pace. Candidates are not permitted to write or take notes during these readings. They will reproduce the story from memory, in their own words, after the second reading.



A Junior Semaphore Class.

## "THE DOG AND THE LOST CHILD"

Some years ago, a shepherd had to go and see after his sheep among some distant mountain pastures, and took with him his son, a boy about six years old, and his dog, which always went with him. After a time he found it necessary to climb to the top of a hill, in order to get a better view of the surrounding country. As it would be too tiring for the small boy to climb the hill, he left him at the foot of the hill, giving him strict orders not to wander away. Scarcely, however, had he reached the top, when a thick mist came down, hiding everything from view. The anxious father at once hurried back in search of his child but, unfortunately, he lost his way, owing to the mist. After a search lasting several hours, darkness overtook him, and he was compelled to return home. The boy had not come back to his father's cottage, and it was noticed that the dog, too, was missing.

At daybreak next morning the shepherd, accompanied by a number of his neighbours, again went in search of his child, but in vain. On his return home at nightfall, he was told that his dog had been there, but had at once gone off again after having been given a piece of cake. The search went on for several days; but each evening, on retruning home tired and disappointed the shepherd found that his dog had been at the cottage for its usual piece of cake, and on receiving it had immediately disappeared.

Struck by the strange behaviour of the dog, the shepherd decided to stay at home and watch its movements. When the dog went off with its piece of cake, he followed it, and found that it led him to a spot some distance from where he had left his son. Here there was a deep river, and on the other side of it a cave, to which the dog made its way. The father with difficulty followed, and, on entering the cave, was overjoyed to find his son, somewhat thin but safe and sound, eating the cake the dog had brought him.

1937.

## TIME TABLE.

[TUESDAY, 26TH OCTOBER 1937.]

11 a. m. to 2 p. m.	..	..	..	..	Arithmetic and Algebra.
3 p. m. to 5 p. m.	..	..	..	..	English Grammar.

WEDNESDAY, 27TH OCTOBER 1937.

11 a. m. to 1 p.m.	..	..	..	..	Geometry.
2 p. m. to 3 p.m.	..	..	..	..	General Knowledge.

THURSDAY, 28TH OCTOBER 1937.

11 a.m. to 1 p.m.	..	..	..	..	History and Geography.
2 p.m. to 3 p.m.	..	..	..	..	English Composition.

INSTRUCTIONS to be noted and observed by the Candidates :—

The candidate should mark only the Qualifying Examination Serial No. and Letter allotted to him on the *top right-hand corner of each answer sheet or book* and on no account should the name of the candidate appear anywhere on the answer books. Any answer papers with the name of the candidate on it will be disqualified.

The candidates will be informed of their results either by telegram or by letter as early as possible, but not later than 7th December 1937. Should any candidate not receive his result by that date he should communicate at once to the Secretary, Governing Body, I.M.M.T.S. "Dufferin", Mazagaon Pier, Bombay 10.

Candidates who attain the required standard in this Examination will be invited to come to Bombay, at their own expense, for the Medical Examination, Eye-sight Test, and interview and selection by the Governing Body. The place where and the date on which, they should report in Bombay for this purpose will be notified to them in due course. It will be during the first fortnight of January 1938.

The New Term opens on January 10th, 1938.



The March Past.

TUESDAY, 26TH OCTOBER 1937.

[11 A.M. TO 2 P.M.]

## ARITHMETIC AND ALGEBRA.

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

*N.B.*—The time should be equally divided between the two parts of the paper.

## Part I.

## ARITHMETIC

Marks.

1. (a) Add together 5601, 2781, 48, 155, 6762, 9980. 3  
 (b) The difference between two numbers is 1247. The larger is 28,157. What is the smaller?  
 (c) When two numbers are multiplied together their product is 5481. One number is 87. What is the other?
2. You go to a shop and order 2 dozen oranges at 8 for 6 annas,  $1\frac{1}{2}$  seers of ghee at 9 annas a seer,  $2\frac{1}{2}$  seers of sugar at Rs. 20 per maund (40 seers), 9 dozen mangoes at 9 pies each,  $1\frac{1}{2}$  lbs. of tea at Rs. 1-4-0 per lb. How much change would you get out of a Rs. 10 note? 6
3. (a) Find the value of:— 7  

$$\frac{\cdot 12 \text{ of } (\cdot 0123 - \cdot 004) + \cdot 36}{\cdot 2 \times \cdot 6 \times \cdot 173}$$
- (b) Given that 1 metre is 39·3707 inches, find the difference between 7  
 5 miles and 8 kilometres.
4. If I gain 5% by selling an article for £5-5-0 how much shall I gain 13  
 or lose by selling it for £4-14-6?
5. (a) The area of a square field is 140625 sq. yards. What is the 7  
 length of one side?
- (b) If 30 tons of coal at £1-0-6 per ton are mixed with  $22\frac{1}{2}$  tons at 7  
 £1-4-0 per ton, find the cost per ton of the mixture.

## Part II.

## ALGEBRA.

1. (a) A tin when empty weighs  $d$  pounds, and holds  $q$  pounds of 4  
 coffee. Fifty of these tins of coffee are packed in a box weighing  $r$   
 pounds when empty. What is the total weight?
- (b) It costs £ $x$  to feed  $y$  horses for a year. How many horses can 4  
 be fed for half a year for £2?
2. If a room is  $l$  feet long,  $w$  feet wide, and  $h$  feet high, the area of 8  
 the walls is  $2hl + 2hw$  square feet. Use this statement to find the area  
 of the walls of a room 20 feet long, 15 feet wide, and 9 feet high.
3. (a) Find the product of  $a^2 + ab + b^2$  and  $a^2 - ab + b^2$ . 4  
 (b) Divide  $x^3 - 9x^2y + 27xy^2 - 27y^3$  by  $x - 3y$ . 4
4. Solve the equations:—  
 (a)  $x(x + 3) - 5(x - 7) = x^2 + 1$ . 6  
 (b)  $3 - \frac{x + 5}{8} = 2 - \frac{x + 1}{6}$  6
5. The number of people at a concert is 220. Some pay one shilling 14  
 and some pay two shillings for a ticket, and the amount of money taken is  
 £13. How many people take two-shilling tickets?

TUESDAY, 26<sup>TH</sup> OCTOBER 1937.

[3 P.M. TO 5 P.M.]

## ENGLISH GRAMMAR.

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

Marks.

1. Combine each of the two following groups of sentences into one sentence :— 14

(a) The wind was strong. It drove the ship ashore. The ship stuck in the sand. It remained fixed there for several days.

(b) I gave the man the same instructions again and again. I wished him to avoid making mistakes. Mistakes at such a time might be fatal.

2. (i) Rewrite the following sentences in the plural :— 8

(a) The horse is a handsome animal.

(b) A bright light was seen in the window.

(c) That woman is a good cook.

(d) A knife is a dangerous toy.

(ii) Replace the words italicized by a single word having the same meaning :— 8

(a) They talked to each other *in an angry manner*.

(b) The master treated his slave *without pity*.

(c) I have told you *again and again* not to do this.

(d) He met his friend *by accident*.

3. Write short sentences, one for each, containing the words :— 16

(a) rob, (b) steal, (c) stationary, (d) stationery, (e) respectfully, (f) respectably, (g) principle, (h) principal.

4. Fill in the blanks in the following with suitable words :— 10

A school— was — giving a — about an elephant to a — of small — . She asked if anyone had — seen an — skin. One little girl said she — . The mistress asked — she had seen it. The girl — that she had seen it — the elephant.

5. Some of the following words are spelt correctly, the others in- 20 correctly. Write them all out in their correct form :—

passanger, admited, wellcome, alright, equipped, severly, umbrella, advisable, noticable, adress, arguement, origen, business, chanel, definately, government, humourous, inteligent, keenness merchantile.

6. Rewrite the following sentences in correct English :— 12
- (a) No sooner I saw him I told him the news.
  - (b) I am waiting for you since the past half hour.
  - (c) I do not know swimming.
  - (d) Tin is mined by Cornishmen which is a useful mineral.
  - (e) We play better than him.
  - (f) At night either a red light or a green light are shown.
7. Write out the following, putting in suitable marks of punctuation and the necessary capital letters :— 12
- (a) mr sharp entered and said david copperfiled is to go to the parlour.
  - (b) how long does it take to walk to victoria terminus.
  - (c) theres a mans coat here which hasnt been claimed by anyone.



WEDNESDAY, 27<sup>TH</sup> OCTOBER 1937.

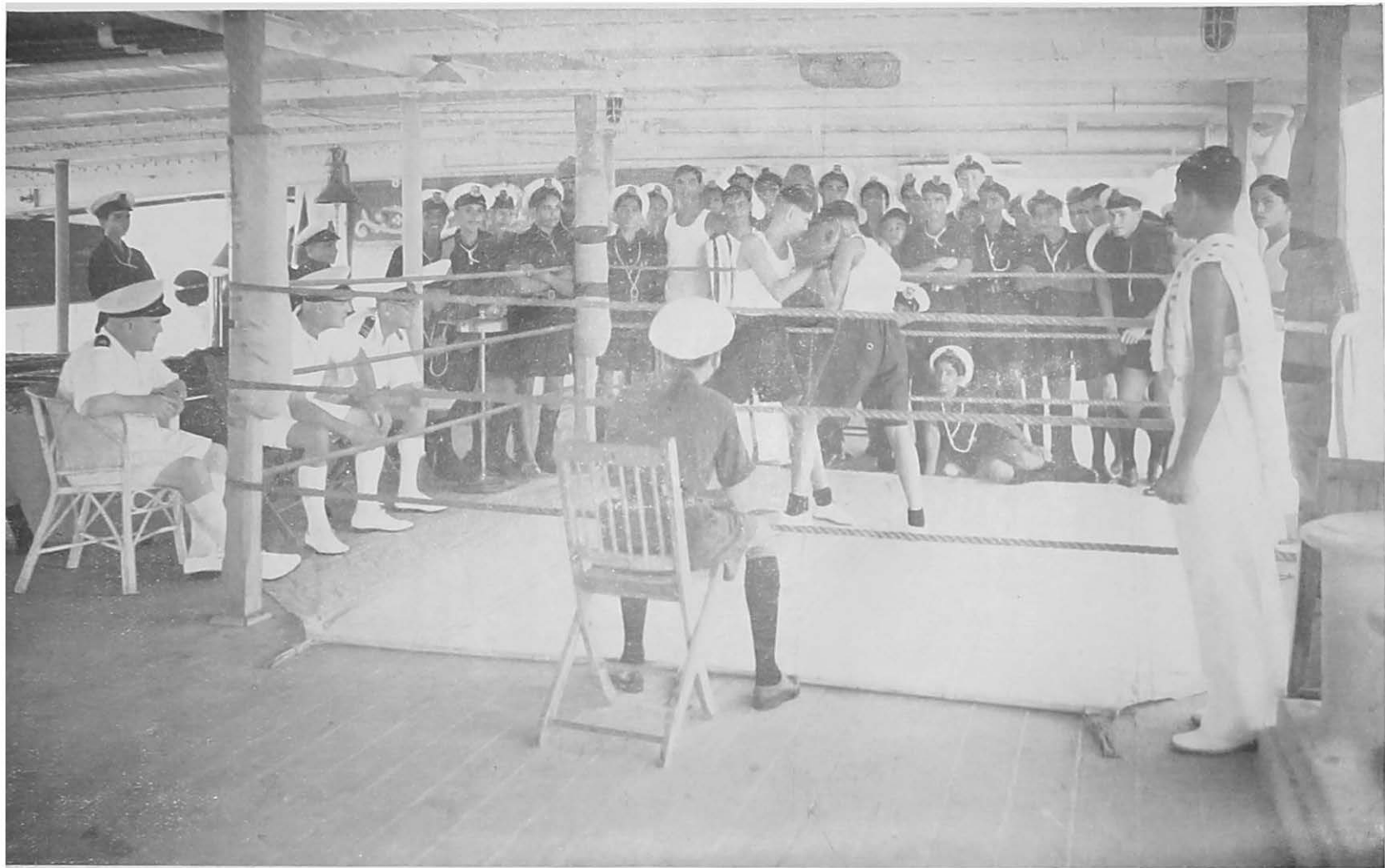
[11 A.M. TO 1 P.M.]

## GEOMETRY.

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

Marks.

1. Draw a straight line  $BC$ . At  $B$  and  $C$  draw straight lines making with  $BC$  angles of 60 degrees each, using your protractor. Produce these lines to meet at  $A$ . What kind of triangle is formed? Measure the angle  $BAC$  and the three sides. 5
2. (a) Draw figures to represent an acute angle, an obtuse angle, a right angle, a reflex angle. Give the name of each. 8
- (b) Write a definition of a semicircle, an equilateral triangle, parallel straight lines, a rectilinear figure. Draw a figure to illustrate each definition.
3. Draw a circle to represent the face of a clock. What will be approximately the angle between the hands of the clock at (a) 2 o'clock, (b) 4 o'clock, (c) 6 o'clock. Which travels farther, the point of the minute hand in an hour, or the point of the hour hand in 24 hours? 8
4. (a) Two towns,  $A$  and  $B$ , are 40 miles from each other. A third town  $C$  is 35 miles from  $A$  and 25 miles from  $B$ . By drawing a figure, 1 inch=10 miles, find the position of the town  $C$ . 9
- (b) The steps of a staircase are 11 inches wide from front to back, and 6 inches high. By using your protractor find the slope of the staircase in degrees. 8
5. From  $B$ , the foot of a flagstaff  $AB$ , a horizontal line is drawn passing through two points  $C$  and  $D$ , which are 47 feet apart. The angles  $BCA$  and  $BDA$  are 65 degrees and 40 degrees respectively. Draw a diagram (scale 1 centimetre=10 feet) and find by measurement the approximate height of the flagstaff. 12



Inter-Top Boxing.

WEDNESDAY, 27<sup>TH</sup> OCTOBER 1937.

[2 P.M. TO 3 P.M.]

**GENERAL KNOWLEDGE.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

Marks.

1. Answer any four of the following questions :—

12

- (a) Explain the meaning of *au revoir*, *vice versa*, *viva voce*, *via*, *viz.*, *alibi*.
- (b) Describe and draw any three road traffic signals.
- (c) Write the words "solids", "liquids", "gases" at the top of three columns; then put the names of the following things in their right column :—  
steam, lead-pencil, ice, paper, air, paraffin, a cloud, rain, motor-oil.
- (d) Give the meaning of each of the following :—  
a bridle-way, a right of way, a subway, the milky way, a hatch-way, an alleyway.
- (e) What are the following used for :—  
thermometer, barometer, microscope, telescope ?
- (f) How much is a rupee worth in English money ? If you changed 20 shillings into Indian money, how much would you get ?
- (g) Give as accurately as you can—  
(i) the population of India, (ii) the height of Mt. Everest, (iii) the time taken by an ordinary letter to reach London from Bombay, (iv) the time taken by an air-mail letter to reach London from Karachi, (v) the temperature of the human body in good health.
- (h) Name six of the following :—  
The Prime Minister of England ; the Dictator of Italy ; the Dictator of Germany ; the leader of the Nationalist forces in Spain ; the Governor of your Province ; the Commander-in-Chief in India ; Flag Officer Commanding, Royal Indian Navy ; The Premier of a Province in India.

2. Answer any four of the following :—

13

- (a) How is time reckoned on a ship ?
- (b) Name four great passenger-ships, one for each, belonging to England, France, Germany, Italy.

- (c) What is the great advantage of oil over coal as fuel on a steamship ?
- (d) What do the following mean when used in connection with a ship :—  
galley, companion, keel, bridge, bold, gangway ?
- (e) What is meant by “ the Blue Riband of the Atlantic ” ?  
What ship holds it ?
- (f) Name five different classes of ship in the British Royal Navy.
- (g) Write in full : A.B., R.N., R.I.N., R.N.R., S.S., R.M.S.
- (h) What is a dredger, a steam-launch, a tanker, a life-boat, a tug ?

3. Answer any one of the four parts, *a, b, c, d* of this question :— 13

- (a) On my way from my home I walk along a street which leads from the north end of the town until I come to four cross-roads, one of which goes to the Free Library. The road to my right leads to school ; the road in front leads to the station. I decide to go due East.

Draw a plan of the cross-roads, showing the direction of my home, the school, the station, the Free Library, and the way I take.

- (b) The following message was sent by code : “ xbjv gps nf bu uif dsptt-spbet.” The message means : “ Wait for me at the cross-roads.”

Translate the following, which is in the same code : “ j xjmm xbjv gps zpv ujmm evtl.”

Express in the same code this message : “ Don't be late ”.

- (c) What is absurd in the following :—
- (i) The gentlemen of Queen Anne's time often carried dainty lace handkerchiefs as well as the ladies.
  - (ii) All motor-cycles have two wheels ; your machine has two wheels ; therefore it is a motor-cycle.
  - (iii) Noses are necessary for smelling ; roses smell ; therefore roses have noses.
- (d) Answer any four of the following :—
- (i) What would you do if you suddenly lost your memory and could not remember your name and address ?
  - (ii) Why does a rupee have a milled (rough) edge and a two-anna piece a smooth edge ?
  - (iii) How can you tell whether a flash of lightning is close to you or far away ?
  - (iv) What first aid would you give to a person—
    - (a) who has burnt himself, (b) who had fainted, (c) who had been bitten by a snake ?
  - (v) How would you try to put out a fire (a) in a patch of grass, (b) caused by petrol, (c) in a furniture shop ?
  - (vi) Why does a person feel cooler when the wind blows ?
  - (vii) How does a parachute enable an airman to land safely ? What is the danger in using a parachute ?
  - (viii) Why are 1st Class compartments usually in the middle of a railway-carriage ?

Marks.

- (ix) Two ships *A* and *B* are anchored a mile from each other. A strong tide is running from *A* to *B*. You fall into the water between *A* and *B*, a quarter of a mile from *A*. Which ship would you try and swim to ?

4. Answer any four of the following :—

12

- (a) What speed-record has recently been established, and by whom ?
- (b) Describe what has been happening lately in the Mediterranean.
- (c) Write a brief account of recent fighting between two Oriental countries.
- (d) What woman aviator has been lost this year ? Where was she lost ?
- (e) What British boxer has risen to fame this year ? What were the results of his last two fights ?
- (f) Give brief details of a recent mountaineering disaster in the Himalayas.
- (g) Who owned the yachts racing for the America Cup ? What was the result of the races ?
- (h) What serious railway accident took place in India this year ?



Hockey Eleven.

THURSDAY, 28TH OCTOBER 1937.

[11 A.M. TO 1 P.M.]

**HISTORY AND GEOGRAPHY.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

*N.B.*—Answer any *four* questions in each part. The time should be equally divided between the two parts.

All the questions carry equal marks.

**Part I.**

**HISTORY.**

(Full Marks—50.)

1. Where did Babar originally come from ? Over what country did he rule before coming to India ? What kind of man was he ? Was he a good ruler ? Describe his personal character.

2. Describe the early career of Hyder Ali. How did he collect a mighty army ? What was his ambition ? How were his plans defeated ?

3. What did the Marquis Wellesley aim at while he was Governor-General ? What were the great powers in India at the time ? What plan did Wellesley follow to carry out his policy ?

4. Why did Lord Auckland restore Shah Shuja to the throne of Afghanistan ? Describe how Akbar Khan made himself master of the country. After the defeat of Akbar Khan, who became ruler of Afghanistan ?

5. Write short notes on (a) the Invincible Armada, (b) Magna Charta, (c) the Battle of Hastings, (d) the Battle of Trafalgar.

6. What part did Cromwell play in defeating the Royalist forces in the Civil War ? How did England become the strongest naval power in Europe during his time ?

**Part II.**

**GEOGRAPHY.**

1. Give reasons for the following :—

(a) The Himalayas are a great storehouse of water.

(b) Most of the water that falls on the Himalayas comes back to India.

(c) The rainfall of the Western Ghats is much heavier than that of the Deccan.

(d) Delhi is hotter in summer and colder in winter than Bombay.



2. (a) Why are the following places important ? :—

Glasgow ; Manchester ; Liverpool ; Bristol.

(b) Name three rivers, three mountain ranges, three mountain peaks, and three lakes in the British Isles.

3. (a) What countries in Europe produce—

(i) oranges and lemons, (ii) wines, (iii) wheat, (iv) timber ?

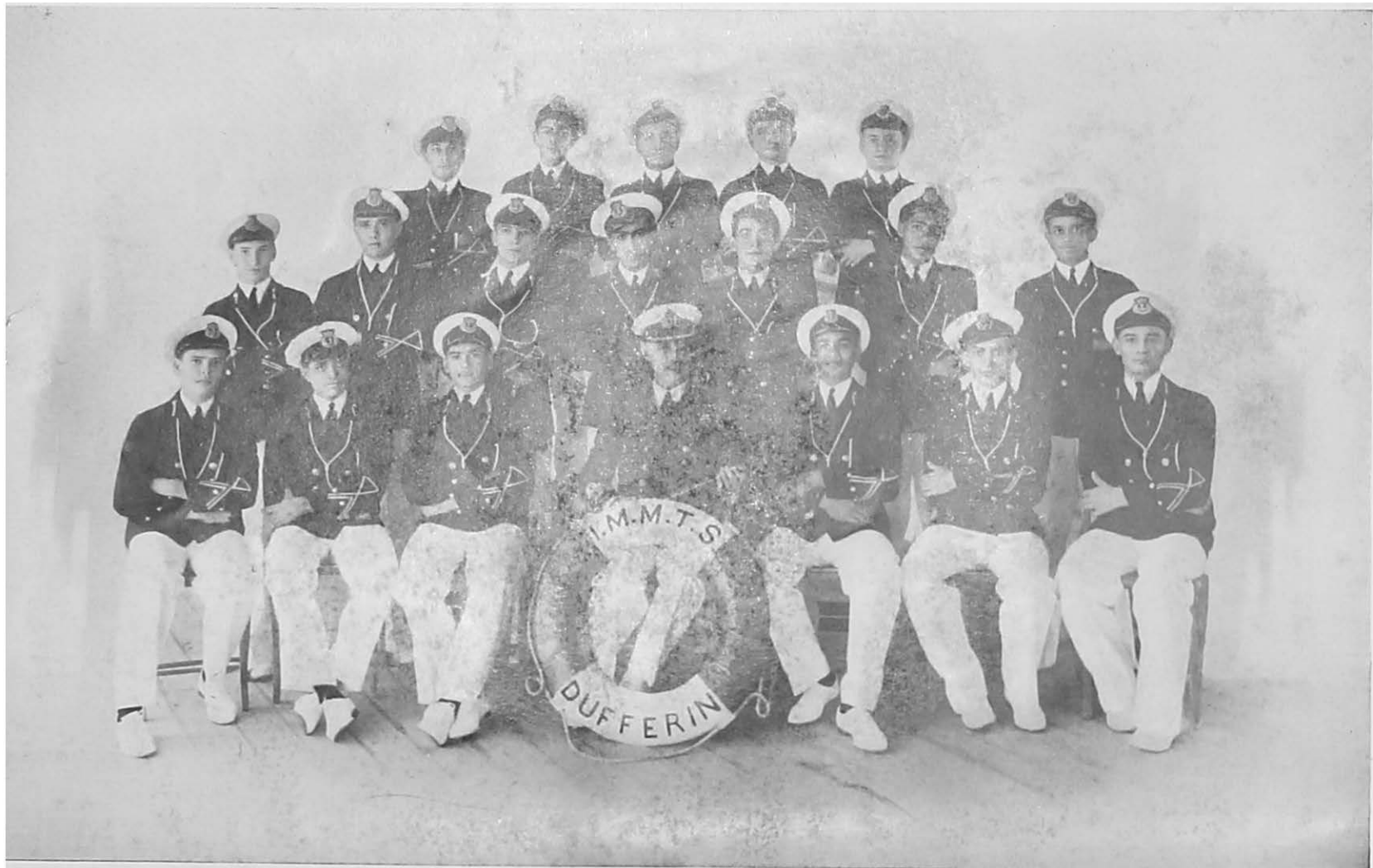
(b) Write a short account of Holland and Belgium with regard to their surface, the occupations of their people, and their means of communication.

4. (a) Name five of the great railways of India, and state what parts of India they pass through.

(b) What are the chief things you would expect to find carried in a goods train approaching Calcutta, Bombay, Madras ? Give reasons for your answer.

5. What is the chief occupation of the people of India ? Describe very briefly the life of the average Indian peasant. What do he and his family do during the less busy seasons ? What necessities of life have to be imported into India ?

6. How would you find the North by observing the stars ? Does the compass needle always point to the true north ? If not, account for the difference.



Cadet Captains, 1938.

THURSDAY, 28<sup>TH</sup> OCTOBER 1937.

[2 P.M. TO 3 P.M.]

(Full Marks—50.)

**ENGLISH COMPOSITION.**

*Warning.*—The candidate's name must not, on any account, be written anywhere in his answer-book. His Serial Number and Letter must be written on each page.

*N.B.*—The story should first be read aloud slowly to the candidates, and again a second time at an ordinary reading pace. Candidates are not permitted to write or take notes during these readings. They will reproduce the story from memory, in their own words, after the second reading.

**“GREAT SNAKES.”**

The king-cobra is one of the most dangerous snakes found in India, for it can move very quickly and will often attack without being provoked.

Some years ago, an officer was in command of a company of soldiers, visiting certain villages which had recently been giving a lot of trouble. After a time, finding that the Government treated them well, the villagers settled down to a more peaceful life. But one day, on arriving at a path which led to a certain village, the guide who was with the party halted and pointed to a collection of sticks and stones arranged in an unusual way in the middle of the road. “I do not like that,” he said to the officer, and asked that the soldiers should be halted. Carefully studying the ground, he declared that the meaning of the sign was, “This road is dangerous. Don't use it.”

Just then some villagers appeared, and told the guide the following story. Some weeks before, a villager going down the path had been attacked by a king-cobra and had died from the bite; later on, two other men had been attacked while passing along the same way and had died in the same manner. The villagers could actually see the snake when they crept up to the field of corn in which it had taken up its abode. It was such a huge creature that, when it rose up, its head was a foot above the corn. The frightened peasants begged the officer to slay the monster.

It happened that the officer had with him a double-barrelled gun, and he felt that, with this weapon, he could blow the snake to pieces without very great risk. Loading this gun, he proceeded cautiously, in the direction pointed out by the villagers. Sure enough, when he was about twenty yards from the field, he saw a snake's head swaying above the corn, evidently watching him. He was raising the gun to his shoulder when he saw something which filled him with terror; another king-cobra appeared a few feet away from the first. He had to make two good shots or he would not escape death. Though badly frightened, he managed to control himself, and he simply raised the gun to his shoulder and fired two shots, one after the other, as if he were shooting snipe. Both the heads disappeared, but the officer was so overcome that he sat down immediately on the ground and took a minute or two to recover. The villagers came running up and found that, although their tails were still swishing to and fro, the two snakes were dead.

## APPENDIX VI.

## Bengal Pilot Service.

## SPECIMEN RULES FOR THE APPOINTMENT OF CANDIDATES TO THE BENGAL PILOT SERVICE (AS IN 1933).

1. Appointments to Bengal Pilot Service are made by the Governor General in Council on the advice of the Public Service Commission in India and the High Commissioner in England.

Appointments are made in England only when the Governor General in Council has been unable to make suitable appointments in India.

A.—*Appointments in India.*

2. The selection of candidates for admission to the Bengal Pilot Service shall be made in India at such time as the Governor General in Council may direct.

3. A candidate shall apply in such form and before such date as the Public Service Commission may direct. The application shall be made to the Secretary, Public Service Commission.

4. A candidate must be a male and must be either :—

- (i) a British subject of Indian domicile who was and whose father and mother were born within His Majesty's Dominions and allegiance, or
- (ii) a British subject of Indian domicile whose father was at the time of the candidate's birth and still is (or, if dead, continued until his death to be) a British subject or a subject of a State in India, or
- (iii) a Ruler or a subject of a State in India in respect of whom the Governor General in Council has made a declaration under Section 96-A of the Government of India Act.

5. A candidate must not have attained his twenty-third birthday on the 1st July 1933.

6. A candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties of a member of the Bengal Pilot Service. A candidate who after selection is found by a Medical Board not to satisfy these requirements will not be appointed.

7. A candidate must satisfy the Public Service Commission that his character is such as to qualify him for employment in the Bengal Pilot Service.

8. A candidate must be in possession of a Certificate of Competency as second mate (foreign-going). This qualification is essential. The certificate is issued by the Board of Trade in Great Britain, and by the Governor General in Council in India. The examinations for the certificate in India are conducted by the Mercantile Marine Department (Commerce Department), Government of India. Preference will be given to candidates who have passed through the Indian Mercantile Marine Training Ship "Dufferin".

9. A candidate must if so required attend for interview by the Public Service Commission at such time and place as may be arranged by the Commission.

10. Candidates must pay the following fees :—

(i) Rs. 7-8-0 with the application form, and

(ii) if selected Rs. 16 before examination by a Medical Board.

11. No recommendations, except those invited in the form of application, will be taken into consideration. Any attempt on the part of a candidate to obtain support for his application by other means may disqualify him for selection.

12. The Public Service Commission shall forward to the Governor General in Council a list in order of preference of those candidates whom they consider suitable for appointment.

NOTES.—

(1) The pay of the post is at present :—

as Junior Leadsman, Rs. 200,

as Second Mate's Leadsman, Rs. 250,

as First Class Leadsman, Rs. 300 per month,

*plus* in each case 50 *per cent.* of the Lead money paid by ships on which the leadsman serving, subject in each case to the emergency cut of 5 *per cent.*

(2) A Leadsman Apprentice will be on probation for five years and until he passes the qualifying examination for the Mate Pilot's grade.

(3) Candidates are informed that appointments to the Service will be on a provisional basis and that the rates of pay sanctioned for the service are subject to revision from time to time according to the requirements of the service. The revision of the rates of pay is at present under consideration.

(4) The candidates selected will be required to take up duty as soon as possible after selection.

(5) A candidate must deposit a fee of Rs. 7-8-0 (*vide* paragraph 10 above) under the Account Head "XXVI—Miscellaneous Departments—Examination Fees" into a Government Treasury and forward the treasury receipt to the Secretary, Public Service Commission, with his application. No claim for the refund of this fee will, under any circumstances, be entertained.

(6) The interview mentioned in rule 9 will be held at Delhi in the middle of October 1933.

(7) The Public Service Commission do not defray the travelling or other expenses of candidates summoned for interview by them. They will, however, contribute towards these expenses at a rate corresponding to the amount of the intermediate Railway fare from the candidate's place of residence to the place of interview and back or at a fixed rate of 56 *per cent.* of the second class fare on lines where there is no inter class, as the case may be.

## APPENDIX VII

## CADET'S EQUIPMENT.

*List (a).*

To be purchased on joining, from the Ship's Authorised Tailor—Cost Rs. 115 (Approximate) :—

- 1 Coat. Blue Serge—double breasted (Uniform).
- 4 Tunics. White drill—single breasted (Uniform).
- 4 Trousers. White drill—non turn up.
- 2 Caps uniform—patent peak—moire band and badge.
- 3 Cap covers—marcella.
- 6 Uniform buttons, large.
- 4 Uniform buttons, small.
- 4 Shirts Dungree Blue (Uniform).
- 4 Shorts Dungree Blue.
- 2 Shorts Black for games.
- 4 Shirts for games (2 blue and 2 white).
- 2 Pairs of black shoes.
- 1 Pair white canvas shoes (no toe caps).
- 1 Pair canvas rubber shoes.
- 6 Pairs black stockings (woollen).
- 2 Pairs Games stockings.
- 4 Pairs socks black (cotton).
- 2 Boiler Suits (for executive cadets).
- 3 Boiler Suits (for Engineer cadets)
- 1 Working Coat.
- 1 Bathing Costume.

*List (b) (i).*

Obtainable through Ship's Canteen. Approximate cost on joining Rs. 20 :—

- 1 Bathing Slip.
- 2 Lanyards.
- 2 Blazer badges.
- 1 Belt, leather.
- 1 Tooth brush, paste and Soap.
- 1 Pair of Flashes.
- 1 Tie, Black.
- 1 Clasp knife.
- 2 Collars, stiff.
- 2 Collars, semi-stiff.

*List (b) (ii).*

Books and Instruments supplied by the ship and charged for in advance  
(Prices approximate):—

Executive Cadets (Rs. 34/-)—

Beginning of 1st Term ..	..	1 copy of Nories' Tables. (Rs. 16).
Beginning of 1st Term ..	..	1 copy of Nichol's seamanship. (Rs. 12).
Beginning of 2nd year ..	..	1 copy of Admiralty Manual. (Rs. 5-8-0).

Engineering Cadets (Rs. 31/-)—

Beginning of 2nd year ..	..	1 set of Drawing Instruments. (Rs. 17).
		1 copy of Reads' Practical Mathematics. (Rs. 14).

*List (c).*

To be arranged for privately, but these articles are also purchaseable through the Ship's Tailor at an approximate cost of Rs. 70 :—

- 1 Pair Football boots.
- 1 Pair braces.
- 4 Vests, cotton.
- 3 Shirts, white, tennis.
- 3 Shirts, white, without collars.
- 4 Sleeping suits.
- 8 Handkerchiefs, white.
- 4 Pillow Cases.
- 4 Napkins.
- 4 Sheets.
- 4 Towels.
- 1 Blanket brown.

NOTE:—It is found by experience that the total annual replacements of above equipment through wear and tear amount to about Rs. 40 approximately. Where necessary, such replacements will be made through the ship's suppliers and their bills, duly approved by Captain-Superintendent, will be sent to the Parents for direct payments during the term.

## APPENDIX VIII.

*Rules governing the Admission of Cadets of the Indian Mercantile Marine Training Ship "Dufferin" to the Commissioned ranks of the Royal Indian Navy (under Revision).*

The special competitive examination for candidates from the I. M. M. T. S. "Dufferin" desiring admission to the commissioned ranks of the Royal Indian Navy, will be held at Bombay not later than October. The examination will be conducted by the Public Service Commission (India) in accordance with the following rules :—

1. The examination will consist of two parts, an interview by a Board and a written examination.

2. Candidates must have completed five terms in the "Dufferin" at the time of the written examination and be more than 16 years 6 months, but not more than 19 years, of age on the 1st January of the year subsequent to the examination.

3. Candidates must be unmarried. A cadet or apprentice who marries while under training will be discharged.

4. A candidate must be either :—

(a) a British subject of Indian domicile whose father (if alive) is a British subject or a subject of a State in India, or (if dead) was at the time of his death either a British subject or a subject of a State in India or a person in the permanent service of the Crown or a person who had retired from that service ; or

(b) a subject of a State in India :

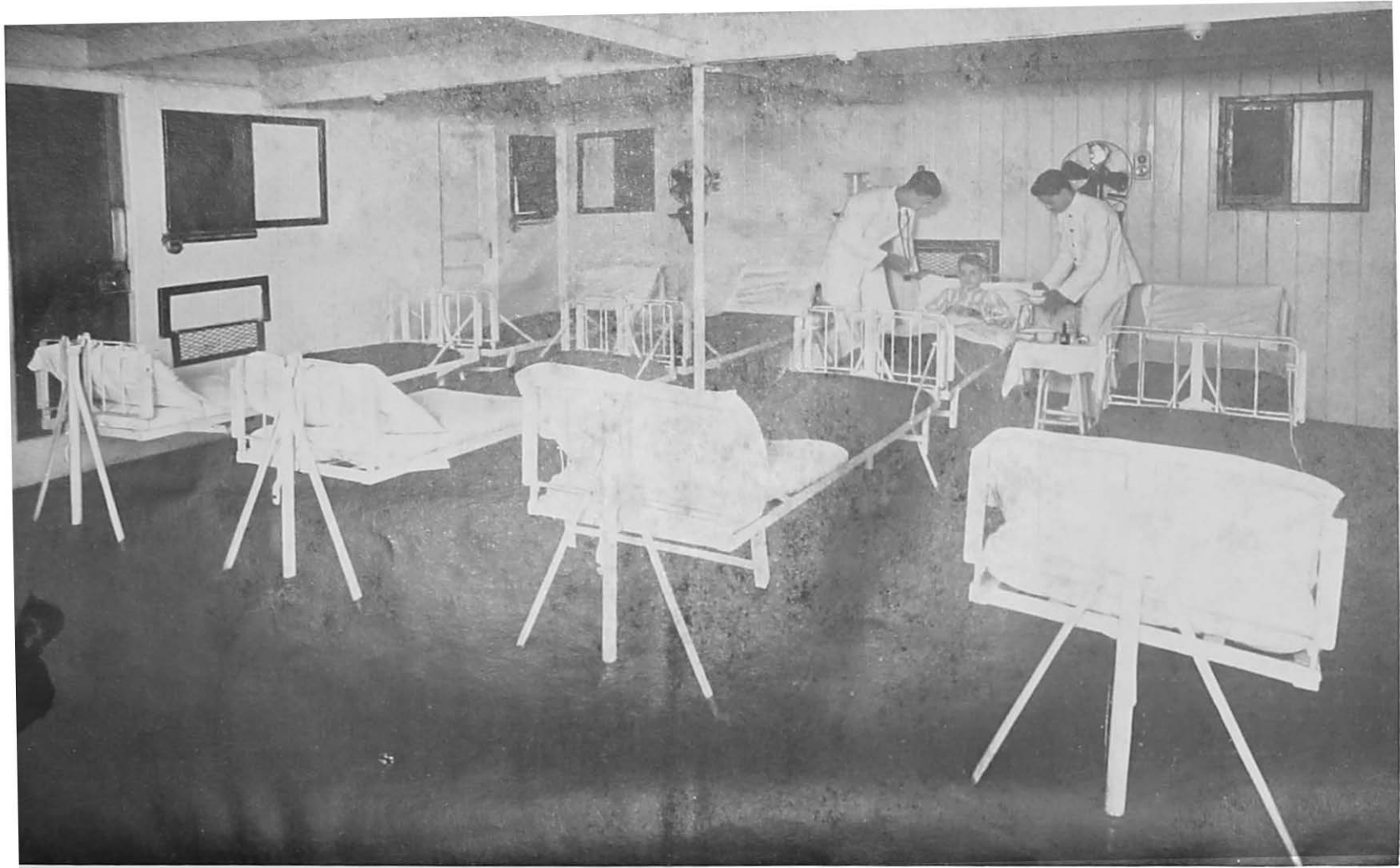
Provided that, in the case of a British subject the requirements of this rule may be waived by the Secretary of State in Council if he is satisfied that the observance would occasion exceptional hardship and the candidate is so closely connected by ancestry and upbringing with His Majesty's dominions as to justify special treatment ;

5. Candidates cannot be admitted to the examination unless they have been recommended by the Captain Superintendent of the Indian Mercantile Marine Training Ship "Dufferin" as being, in his opinion, suitable for commissioned rank in the Royal Indian Navy. Parents or guardians of candidates must undertake for them that they are prepared to be trained as executive or engineer officers according to the exigencies of the service.

6. The examination will include the following subjects and the maximum number of marks obtainable for each subject is as follows :—

	Maximum marks.
Interview and Record Board	500
Mathematics (1) . . . . .	250
Mathematics (2) . . . . .	200
English . . . . .	200
History and Geography . . . . .	250
General Science . . . . .	250
Electricity and Mechanics . . . . .	200
Navigation . . . . .	250





The Sick Bay.

The papers will be based on the curriculum which the candidates have studied in the "Dufferin".

7. The Interview and Record Test will be held at the Navy Office, Bombay, and will be conducted by a Board consisting of a Member of the Public Service Commission (nominated by the Commission) as Chairman, two officers of the Royal Indian Navy and one non-official gentleman to be nominated by the Government of India.

8. Each candidate permitted to appear at the examination must pay a fee of Rs. 50. No claim for a refund of this fee will be entertained.

9. From the marks assigned to a candidate in each subject such deduction will be made as the Public Service Commission may consider necessary in order to secure that no credit is allowed for merely superficial knowledge.

10. If a candidate's handwriting is not easily legible, a deduction, which may be of considerable amount, will be made on this account from the total marks otherwise accruing to him.

11. No candidate, whatever his position may be in the order of merit, will be declared successful unless he obtains at least 40 per cent. marks for the Interview and Record test, 50 per cent. marks in Mathematics 1) and 50 per cent. of the maximum aggregate of marks in the written examination.

12. (a) Candidates who obtain the minimum marks prescribed by rule 11 will be required to complete their training in the "Dufferin" and must pass the Final Passing Out examination of the ship.

(b) They will also be required to pass a medical examination as to their physical fitness for service in the Royal Indian Navy. The details of the physical requirements are contained in Appendix I to the "Regulations respecting the recruitment, training, rates of pay, etc., etc., of commissioned officers of the Royal Indian Navy". This examination will be held after the results of the competitive examination are known. Those candidates who fail to pass the medical examination will not be accepted as cadets for the Royal Indian Navy.

13. According to the number of vacancies available, a nomination, or nominations, for Royal Indian Navy cadetships and/or apprenticeships will be allotted by the Government of India, Navy Department, to the best candidate, or candidates, in order of merit as shown on the combined total of marks awarded by the Interview and Record Board and obtained at the written examination, provided that no candidate who subsequently fails to pass the Final Passing Out examination of the "Dufferin" will be selected as a cadet or apprentice on the result of the competitive examination.

14. All travelling and other expenses in connection with candidates' attendance before the Interview and Record Board, the written examination and the medical examination must be borne by the candidates themselves.

15. Candidates selected for training as commissioned officers of the Royal Indian Navy will be required to proceed for training to England in accordance with the "Regulations respecting the recruitment, training, rates of pay, etc., etc., of commissioned officers of the Royal Indian Navy" except so far as these regulations are modified by the present rules.

16. Candidates selected for the executive branch will be sent to England to join H. M. S. "Excellent" and "Vindictive" in the following January for a period of training of not less than three terms. Short leave to visit their parents or guardians prior to leaving India may be granted at the discretion of the authorities.

17. Candidates selected for the engineer branch will be sent to England for training as soon as the necessary arrangements can be made.

18. The Government of India reserve the right of amending these rules from time to time as may be found necessary.

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*Extract from Regulations respecting the recruitment, training, rates of pay, etc., etc., of commissioned officers of the Royal Indian Navy.*

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## CHAPTER II.

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4. In any year in which there is more than one vacancy for Indians to be filled, at least one of those vacancies will, at the discretion of the Government of India, be reserved for cadets of the Indian Mercantile Marine Training Ship "Dufferin". In case only one such vacancy can be offered in the two branches (executive and engineering) taken together the Government of India will decide whether competition for it should be open or confined to cadets of the "Dufferin".

## APPLICATION FOR ADMISSION.

## INDIAN GOVERNMENT MERCANTILE MARINE TRAINING SHIP "DUFFERIN".

This form should be filled in BLOCK LETTERS and posted to reach Bombay not later than 15th September each year.\*

This application for admission must be accompanied by a remittance of Rs. 10 (ten) in Government Currency Note under insured registered cover.

1. State whether you are applying for the Executive Course or the Engineering Course or are prepared to take either course .. .. .
2. Full name of applicant .. .. .
3. His father's full name and occupation .. .. .
4. Province of domicile and mother tongue .. .. .
5. Full permanent address of Father or Guardian .. .. .
6. Religion and caste .. .. .
7. Date of birth of applicant .. .. .
8. Age of applicant on 15th January 1939 (years, months and days) .. .. .
9. Place of birth .. .. .
10. Name of school and class the candidate is studying in .. .. .
11. Full name and relationship of guardian (if not the father) .. .. .
12. Occupation of guardian .. .. .
13. Name, Address and occupation of a relation or friend in Bombay, if any .. .. .
14. If applicant has been a scout .. .. .
15. Can the applicant swim ? .. .. .
16. Name of examination centre at which the candidate desires to appear .. .. .

Signature of applicant.

\* Candidates who delay their applications until the last few days do so at their own risk.

## Declaration by Guardian.

I declare that I have read the current edition of the Prospectus of the Training Ship and accept its terms and conditions.

In the event of the above applicant being admitted to the Training Ship, I undertake to pay his fees as they become due until the completion of his course of training.

Dated the 193 .

To  
The Secretary, Governing Body,  
I. M. M. T. S. "Dufferin",  
Mazgaon Pier,  
Bombay, 10.

Signature of Guardian.

## Certificate by the District Magistrate or a Justice of the Peace.

I certify that I have carefully read the statements made above and that so far as I know, the information is correct. I also certify that the Applicant and his parents are

British Subjects \* and that they are domiciled in India.  
Subjects of a Ruling Prince in India

Signature.  
District Magistrate.  
Justice of the Peace.

Dated .....

(This certificate must be signed by a District Magistrate or a Justice of the Peace.)

\* Score out as necessary.

P. T. O

*N.B.*—The following certificates, in original, must accompany this application :—

- (1) Birth certificate or proof of age. (Horoscopes and Extracts from Birth registers in vernacular must be accompanied by an English rendering of its contents with the dates shown in terms of the Christian Era duly countersigned by a J. P. or a District Magistrate. Certified extracts from School records are also accepted.)
- (2) Medical and eye-sight certificate, in original, from a Government medical officer, of not lower rank than an Assistant Surgeon.
- (3) Two certificates, in original, of good character from two respectable persons not related to the applicant.
- (4) A certificate that they are British Subjects or Subjects of a Ruling Prince in India and that they are domiciled in India, which is printed on this form, must be signed by a District Magistrate or a Justice of the Peace.