

All about sight tests : Board of Trade Regulations / ... by D.H. Bernard.

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Some Remarkable Cases of
Gross Injustice.

Edison

ALL ABOUT SIGHT TESTS

Board of Trade Regulations

Everyone Interested in Seafaring
:: should read this Book by ::
D. H. BERNARD, Master Mariner.

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PRICE 1s. Net.

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ALL ABOUT SIGHT TESTS.

SOME REMARKABLE CASES.

IT is most difficult to write a book on this subject without passing remarks anent the unpracticable methods employed by the Board of Trade to examine the sight of candidates for certificates of competency as Second Mate, First Mate, Master, or Extra Master; but it is not solely with this purpose that the book on this subject has been compiled. Sufficient information is given here to prove that the methods now adopted by the Board of Trade stand self-condemned.

THE TRATTLES CASE.

The "Trattles" case proved, without doubt, that even the greatest scientists are not in a position to define whether an officer on board ship is physically competent, so far as his eyesight is concerned, to perform navigational duties. To be brief, Mr. John Trattles after being declared competent to pass an examination and obtain a Second Mate's certificate at the hands of the Board of Trade examiners, was failed on presenting himself for his First Mate's certificate in colour vision test. Mr. Trattles was then asked to surrender his certificate as Second Mate, and upon declining to do so, on the advice of his society, the Board of Trade referred the matter to the London Local Marine Board, who held an Inquiry and declared him competent. Not being satisfied with this, the Board, some time afterwards, appointed a special

Court, presided over by Sir Francis Mowatt, G.C.B., assisted by Mr. John Dickinson, a Metropolitan Magistrate, with a similar end in view, with the result that an eminent counsel was retained to support Mr. Trattles, and the case was practically tested by Commander David Wilson-Barker, R.N.R., who declared Mr. Trattles competent to fulfil his duties. A decision was then given by the Court in favour of Mr. Trattles, and the Board of Trade was ordered to pay the costs, which after taxation, amounted to £308. Subsequently Mr. Trattles presented himself for his First Mate's certificate and passed the examination without difficulty. It is only fair to state here that this case was fought and won by the Imperial Merchant Service Guild.

IEWS OF CERTAIN S.S. LINES.

Since that time numerous cases have occurred, and a number of instances are recorded where not only candidates for Board of Trade certificates have failed to pass the examination, but also captains and officers of large liners have been debarred from following their profession on the grounds of imperfect vision. Steamship companies have, during the past year or so, ordered their captains and officers to undergo the sight tests annually, with the result that a number of excellent men have been deprived of their livelihood.

A GRAVE INJUSTICE.

It is not the purpose of the author to labour largely on this point, but it is essential that evidence shall be put forward in order to show how necessary

it is for a young man embarking on a sea career to assure himself that, in after years, he will not fail to come up to the standard of the Board of Trade's requirements. In proof of this the following incident is worth relating :—

A promising young cadet was first tested in eyesight by a Board of Trade official before joining the training ship *Worcester*, and without the slightest difficulty he passed both the form and vision test. Again on leaving the *Worcester* before signing indentures as apprentice, he, in order to make certain that his vision was correct, again presented himself for examination and obtained the sight-test certificate. On serving the necessary time which qualified him for a Board of Trade certificate he was again examined in eyesight and successfully sat for his Second Mate's certificate. On filling in the qualified time he obtained the First Mate's certificate.

During the aforementioned periods he did not suspect that anything was at all wrong with his visionary powers. The captains under whom he had served had noticed no defects whatever in his sight, and it was not until he presented himself at Well Street, London, where he was examined by a Board of Trade official, that he entertained any doubt with regard to it. He was failed in colour vision, and on appeal re-examined by Sir William Abney, who confirmed his failure. The Board of Trade then approached him and asked him to surrender his First Mate's certificate on the ground of physical incompetency, with the result that on the advice of his society he failed to comply with their request, and he still holds his First Mate's

certificate. Recently the Board of Trade have threatened to hold an Inquiry and compel him to surrender his certificate on the ground of physical incompetency, but, at the time of going to press, they have done nothing further in the matter.

HOW THE B.O.T. ARE ADVISED.

Subsequent to the foregoing cases, the Board of Trade, instead of appointing a committee of men, who, by reason of their calling could, in a practical way, offer suggestions to the Board of Trade as to how the visionary powers of ships' officers should be tested, went as usual in an entirely opposite direction and appointed a Select Committee to inquire into the whole matter. The official announcement of this Committee reads as follows :—

“ The President of the Board of Trade has appointed the Right Hon. Arthur H. Dyke-Acland (chairman), the Lord Rayleigh, O.M., F.R.S. ; Sir Arthur Rucker, F.R.S. ; Mr. Raymond Beck, Captain Thomas Golding, Professor Francis Gotch, F.R.S. ; Mr. Norman Hill, Mr. Edward Nettleship, F.R.C.S. ; Mr. J. H. Parsons, F.R.C.S. ; Professor J. H. Poynting, F.R.S. ; and Professor E. H. Starling, M.D., F.R.S., to be a Committee to inquire what degree of colour blindness or defective form vision in persons holding responsible positions at sea causes them to be incompetent to discharge their duties ; and to advise whether any, and if so, what alterations are desirable in the Board of Trade Sight Tests at present in force for persons

serving or intending to serve in the merchant service or in fishing vessels, or in the way in which those tests are applied.

The President has also appointed Dr. William Watson, F.R.S., and Mr. S. G. Tallents to be Secretaries to the Committee."

SOME DRASTIC RECOMMENDATIONS.

It should be stated here that after two years' deliberations the Departmental Committee on Sight Tests issued their Report. It seems that during this time they had twenty meetings, whilst the sub-Committee met on twelve different occasions and examined certain officers. So far as practical purposes are concerned, instead of improving matters, the Departmental Committee, as it might be imagined, made them far worse, and the summary of the recommendations were as follows :—

1. *That steps should be taken to ensure that when judicial inquiries into the causes of shipping casualties are being held, witnesses who give evidence as to the nature or position of coloured signals or lights should always be tested for colour and form vision.*

2. *That the approximate limits of colour defect compatible with efficiency should, subject to the limitations laid down in paragraph 36, be considered provisionally to lie between some such values of the luminosity ratio as 1.15 and .85.*

3. *That the wool test should be modified—*

(a) *by substituting a dark brown skein for the third (deep red) test skein at present in use ;*

(b) by dividing the skeins into specified groups, one group for each test skein, and requiring the candidate to divide each group into two parts, those which resemble in colour the test skein and those which do not.

4. That both the lantern, to which we refer in paragraphs 63 to 67, and the modified wool test be used in examining the colour vision of all candidates.

5. That it is unnecessary to re-examine for colour vision a person who has passed satisfactorily both the lantern and the wool test.

6. That the 1914 standard of form vision be adhered to for all candidates for certificates of competency.

7. That any officer, holding a certificate, whose visual acuteness in the better eye has fallen below half normal, be considered to be incompetent.

8. That steps be taken to impress upon the authorities of training ships, parents and guardians sending boys to sea, and owners taking apprentices, the desirability of the eyesight of these boys undergoing an expert examination before they adopt the sea as a profession.

9. That, provided care is exercised in their selection, the local tests for both colour and form vision be left in the hands of the present type of examiners.

10. That all examiners should receive a careful course of instructions in the methods to be adopted in applying the modified wool test and the lantern test.

11. *That a distinction be drawn between "APPEAL" and "REFERRED" cases of failure to pass the local colour tests.*

12. *That an ophthalmic surgeon be added to the present body of examiners in appeal cases.*

HOW CERTIFICATES WILL BE AFFECTED.

It will be seen from the foregoing that in the case of shipping casualties coming before the Courts, it is recommended that witnesses who give evidence as to the position of coloured lights should always be tested for colour and form vision. In other words, this means that should a witness, say a captain or officer of a vessel, be found defective in form, colour, or vision, his evidence would be disregarded, for the simple reason that the Court would not place any credence upon it. This would result in the case *going against* his owners, and absolutely debar him from obtaining further employment at sea. The Board of Trade would ask him to surrender his certificate. It would leave a clear course for the opposition, and the insurance companies certainly would not allow a person who had been found defective to again resume command of a vessel if the recommendations contained in the Report are carried out. Then the witness, if he is at all doubtful as to his visionary powers, may as well admit that his vessel was in the wrong. At least this is what it would amount to.

It is only too well known that captains and officers who have been to sea for a number of years acquire by training a remarkable power of distinguishing and discerning objects that an untrained person with better eyesight would make nothing of.

They can discern a light at night or a vessel or object in the day-time far quicker than a person who has not yet had the advantage of long experience at sea. Furthermore, there are few officers in our Merchant Service who do not use binocular glasses to assist them when keeping watch on the bridge by day or night, yet at the Board of Trade examinations such glasses are not permissible.

ADMIRALTY TESTS.

In the Royal Navy an officer is not re examined for sight test once he has passed his examination on entering into the service. Why captains and officers of the Merchant Service should be compelled, after they have once passed an eyesight test, to again do so is not yet understood. If the Board of Trade made a rule that a certificated officer, once possessed of his eyesight certificate, could from henceforth follow his profession without official interference in this respect, he might be assured that his livelihood would *not* be at stake, as it is under the present conditions when the obtaining of such a certificate places him in a false sense of security. It simply means that a man is considered incompetent on a ship's bridge because he cannot distinguish letters of a certain size at a distance of 16 feet. Since the Departmental Committee have arrived at their conclusions, the Board of Trade recently issued the following notice :—

HOW CANDIDATES ARE TO BE EXAMINED.

Some time ago the Board of Trade issued the following official notice which should be carefully

read by boys who contemplate entering the Merchant Service as a profession :—

NOTICE TO BOYS GOING TO SEA IN THE MERCANTILE MARINE OR IN FISHING BOATS.

SIGHT TESTS.

I.—FORM VISION.

The standard of visual acuteness which will be required from every candidate who presents himself for his first certificate of competency on or after 1st January, 1914, is practically normal vision in one eye (v-5.5) and not less than half normal vision in the other (v-5.10), i.e., a candidate must be able to read correctly with one eye, at least 8 out of the 15 letters in the seventh line, and at least 9 of the 12 letters in the sixth line of the test types used by the Board of Trade, and with the other eye, all the letters in the fifth line.

It is important that every person who contemplates becoming an officer in the Mercantile Marine or in Fishing Boats, should realize that ability to reach this standard at the time of Examination for his first certificate does not guarantee that he will be able to pass when he presents himself for his higher certificate, 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 in 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 degree 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 going to sea should undergo a thorough examination of his sight 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.

II.—COLOUR VISION.

It is equally desirable that every boy should, before going to sea, ascertain whether his colour vision is normal. He can do this by presenting himself for examination in the ordinary Board of Trade sight tests at any of the following Mercantile Marine Offices on one of the days named. The fee charged for this examination is One Shilling.

III.—PORTS WHERE EXAMINATIONS IN THE SIGHT TESTS ARE HELD.

ABERDEEN.—Monday before the 2nd and 4th
Tuesday in each month.

BELFAST.—Every Saturday morning from 10
a.m. to 12 a.m.

BRISTOL.—Monday before the 1st and 3rd
Tuesday in each month.

CARDIFF.—Any Monday between 10 a.m. and 11 a.m.

DUBLIN.—Monday before the 2nd and 4th Tuesday in each month.

DUNDEE.—Any day during office hours.

GLASGOW.—Monday before the 1st, 3d, and 5th Tuesday in each month.

GREENOCK.—Monday before the 2nd and 4th Tuesday in each month.

GRIMSBY.—Monday before the 1st and 3rd Tuesday in each month.

HARTLEPOOL (West).—Monday before 4th Tuesday in each month.

HULL.—Any day during office hours.

LEITH.—Any day during office hours.

LIVERPOOL.—Every Thursday, Friday, and Saturday.

LONDON (Dock Street, E.).—Every Friday and Saturday.

LONDON (133 E. India Dock Road, Poplar, E.).
—Any day between 10 a.m. and Noon.

LONDON (Tilbury, Essex).—Any day during office hours.

LONDON (Victoria Docks).—Any day during office hours.

MANCHESTER (Salford).—Any day during office hours.

NEWPORT.—Any Monday at 10 a.m.

NORTH SHIELDS.—Any Monday at 10 a.m.
Other days by special arrangement.

PLYMOUTH.—Monday before the 2nd and 4th Tuesday in each month.

QUEENSTOWN.—Any day by special arrangement.

SOUTHAMPTON.—Every Monday, and other days by special arrangement.

SOUTH SHIELDS.—Monday before the 1st and 3rd Tuesday in each month.

SUNDERLAND.—Monday before the 2nd and 5th Tuesday in each month.

SWANSEA.—Any Monday at 10 a.m.

Examinations in the sight tests are also held for Fishermen at the Mercantile Marine Offices of the following ports :—

FLEETWOOD, BRIXHAM, MILFORD, RAMSGATE, LOWESTOFT, YARMOUTH (Norfolk), and at any other port where Fishing Examinations are conducted during the time of such Examination.

PRACTICAL SUGGESTIONS.

The author wishes to call particular attention to the advice given by the Board of Trade and impress upon the parents of British boys that it is highly essential that **BEFORE GOING TO SEA EVERY BOY SHOULD UNDERGO A THOROUGH EXAMINATION OF HIS SIGHT BY AN OPHTHALMIC SURGEON.** The Board of Trade test is no proof that a person's colour vision is perfect nor that distant vision will remain good during life however good form vision may be at the time of examination.

REASONS WHY THE BOARD OF TRADE SIGHT TESTS ARE NOT EFFICIENT.

(By Doctor William Primrose, M.B.C.M., M.R.C.S.)

Form Vision.—(1) Persons with normal eyes retain good distant vision during their whole lives, and can therefore always pass the form vision tests.

(2) Persons with myopia (short sight) can never pass the form vision tests, as they never at any time have good distant vision.

(3) Persons with hypermetropia (long sight) may have good distant vision and be able to pass the form vision tests while they are young. Sooner or later, however, according to the degree of hypermetropia, the distant vision fails ; and thus at any time after youth is over, the person may find it impossible to pass the form vision tests. Hypermetropia is a very common defect, but the sight tests fail to detect it until it becomes manifest, after the season of youth is over. Hypermetropia can be diagnosed and accurately measured at any age by an ophthalmic surgeon, and that is one reason why the eyes of all who intend going in for a career, which defective vision may cut short, should be properly examined before they begin their training.

Colour Vision.—The present state of knowledge regarding colour vision is so incomplete that the different kinds cannot be classified ; nor the different degrees measured in any satisfactory manner. There is therefore no colour vision test based on any real knowledge of colour vision. The only colour vision tests we have are based on theory alone, and as every expert in colour vision has a pet theory of his own, there is little likelihood of a satisfactory or efficient test till something more is known about the nature of colour vision. That is the reason why the Board of Trade have to fall back upon the wool test and the lantern test for colour vision ; for although the Departmental Committee recommended “ that the approximate limits of colour vision defect compatible with efficiency should be considered provisionally to lie between such values of the luminosity ratio as 1.15 and .85,” none of the Board of Trade examiners are in any way

competent to carry out such a test. The only thing definitely known about colour vision that is of any practical importance is that it is congenital, that is, a person is born with it, and the natural defect in colour vision is maintained both in kind and degree during the life of the individual. Any colour vision defect that exists should therefore be discovered at the first examination by any efficient test. That this is not done by the Board of Trade tests is only too evident from the number of cases cited in this book. The Board of Trade should therefore make the colour vision test a thoroughly practical one, or hand the examination of candidates' colour vision over to the ophthalmic surgeon who can make use of all the most recent methods for discovering any colour vision defect that may be present.

Excessive tobacco smoking causes a disease of the eyes in which both the colour vision and the form vision are impaired and may be lost. This is curable in its earlier stages.

**BOARD OF TRADE MARINE DEPARTMENT.
EXAMINATION OF MASTERS AND MATES, SKIPPERS
AND SECOND HANDS. INSTRUCTIONS TO
EXAMINERS AND NOTICE TO CANDIDATES.**

SIGHT TESTS.

1. The Departmental Committee appointed to inquire into the Board of Trade Sight Tests have recommended that certain modifications should be made in the wool tests hitherto used and that, in addition, a lantern test should be used in examining all candidates. The Board of Trade have decided to carry into effect these recommendations, and the following instructions will, therefore, on and

after 1st April, 1913, *supersede* those contained in the present (1909) edition of the Regulations relating to the Examination of Masters and Mates in so far as the Colour Vision Test is concerned.

I.—THE WOOL TEST.

2. The wools provided are divided into *five* groups, one to each test skein. The test skeins are labelled respectively—I. (Light Green), II. (Pink), III. (Brown), IV. (Purple), and V. (Yellow), and must always be used in the order named. Care should be taken that the labels do not become detached nor the skeins belonging to the different groups get mixed. To avoid this only one group of skeins should be exposed on the table at one time.

A special bag with five pockets is provided in which the wools, when not in use, must be kept in order that they may not become faded or dirty.

3. The examination in the wool test should be conducted as follows :—

The first group of wools is placed in a heap upon a table covered with a white cloth and the first test skein a little to one side of it, care being taken that no strong sunlight falls directly upon the skeins. The person examined should be requested to note carefully the colour of the test skein and then to divide the group into two parts, one part consisting of those skeins which have the *same colour* as the test skein in them, and the other part the skeins which have *none* of the test skein colour in them. The Examiner should explain that there is no exact match for the test skein, as the skeins which contain this colour are all

either lighter or darker, and that the only question is the division of those skeins which contain the test colour more or less from those which do not. No difficulty should be experienced in explaining to the Candidate what he is required to do, *but if the examiner thinks* he has not grasped what is required he himself may divide the heap into two parts as a demonstration, mixing the skeins up again thoroughly before allowing the candidate to do the test.

4. When the Candidate has dealt with the first test skein each of the four remaining tests should be gone through in a similar manner and in the order named.

5. As the examination proceeds the Examiner should place on one side the skeins which the Candidate has wrongly selected as either resembling *or not* resembling the test skeins, and when the examination is finished, a small piece (say one inch) should be cut off every one of the actual skeins incorrectly selected by the Candidate and stitched to Form Exn. 17c under the proper heading in the spaces provided for each test.

6. The greatest care must be taken that the pieces forwarded are cut off the actual skeins selected by the Candidate in order that there may be a reliable record of the actual selections made by the Candidate *if any question should subsequently arise.* (Note this point.)

7. During this test the Examiner should avoid naming the colours of any of the wools, and should explain to the Candidate that he does not require them to be named by him.

8. The wool test should only be held in daylight. *If a good natural light is not obtainable the test must be postponed.** If dark or foggy weather renders it necessary to postpone the examination until after the examination in navigation or seamanship has been begun, the Examiner should not fail to inform the Candidate that the latter examination will be cancelled in the event of failure to pass the Sight Tests.

II.—THE LANTERN TEST.

9. A special lantern and a mirror have been provided for this test. The lantern should be placed directly in front of the mirror, so that the front part of the lantern is exactly ten feet from the mirror. Care should be taken that the lantern is properly placed, that is to say, the lights reflected in the mirror must show clearly when viewed through the rectangular aperture on the left of the lantern. The Examiner should always satisfy himself that these conditions are fulfilled before commencing an examination.

10. It is essential that a Candidate should be kept in a room which is either completely or partially darkened for at least a quarter of an hour before he is required to undergo this test.

11. Before the Examination commences the Examiner must satisfy himself that the room in which it is conducted is so darkened as to exclude all daylight.

12. The lantern supplied for the examination is so constructed as to allow one large or two small lights to be visible, and is fitted with 12 glasses of three colours—red, white, and green. At the

* A good light has much to do with a proper examination.—*Author.*

commencement of the examination the Examiner should show to the Candidate a series of lights through the large aperture, and should require him to name the colours as they appear to him. Care should be taken in showing the white light to emphasise the fact that the light is not a pure white. If a Candidate makes a mistake of calling this light "red," a proper red light should be shown immediately after and the Candidate's attention directed to the difference between the two.

After a series of lights through the large aperture has been shown, the Examiner should make a complete circuit with the two small apertures, requiring the Candidate to name the colours of each set of two lights from left to right. To prevent any possibility of the order in which the lights are arranged from being learnt, the Examiner should at least twice in each circuit go back a varying number of colours. He should keep a record of the number of the glass with which he began the series and should take care to vary it from time to time.

A record of any mistakes made with either the large aperture or the two smaller apertures should be kept on Form Exn. 17c in accordance with the instructions thereon.

13. As the lantern itself forms a test for colour ignorance, the old colour ignorance test becomes unnecessary and should be discontinued.

III.—SUCCESS OR FAILURE.

14. If a Candidate with either the large aperture or the two smaller apertures of the lantern mistakes red for green or green for red, he should be considered to have "failed" in colour vision.

15. If a Candidate makes no mistakes in the wool test, and if the only mistakes made by him with the lantern is to call the white light "red," and if after his attention has been specially directed to the difference between the two he makes no further mistakes of this nature, he should be considered to have passed in colour vision.

16. If a Candidate makes any other mistake with the lantern, *i.e.*, if he calls white "red" repeatedly or red "white" at all, or confuses green and white, or if he makes any mistake whatever in the wool test, his case should be reported to the Principal Examiner of Masters and Mates, and he should be told that the decision as to whether any further examination is necessary or not will be communicated to him in due course. Pending the receipt of the Principal Examiner's instructions, such a Candidate should only be allowed to proceed with the remainder of the examination for a Certificate of Competency on the express understanding that the latter examination will be cancelled in the event of failure in the Sight Tests.

IV.—FURTHER EXAMINATION AND APPEALS.

17. If in the cases covered by the preceding paragraph the Principal Examiner decides that a further examination is necessary, arrangements will be made for a special examination to be held in London, and the third class travelling expenses necessarily incurred by a Candidate in attending such an examination will be paid by the Board of Trade, together with a subsistence allowance at a rate which will be notified to the Candidate, but which will not in any circumstances exceed *ten*

*shillings each day necessarily occupied in attending the examination.** In these cases the above expenses will be paid whatever may be the result of the final examination.

18. If, however, on the report of the local Examiner the Principal Examiner decides that the nature of the mistakes made shows conclusively that a Candidate is so colour blind as to be unfit to hold a Certificate, the Candidate shall be considered to have failed.

In such cases as well as in the cases covered by paragraph 14, the Board will be prepared to allow a Candidate who is dissatisfied with this decision to appeal for a special examination in London, but *the Board will not pay* the travelling expenses of any such Candidate unless he is reported by the special examiners conducting the appeal examination to have passed.

OFFICIAL STATISTICS.

SOME REMARKABLE CASES OF FAILURE.

According to the Report of the late Assistant Secretary, Marine Department, Board of Trade, during 1910 the total number of candidates examined was 7,502. Of these, 7,393 candidates passed in form vision and 109 failed ; one of the latter was re-examined and failed. 7,252 candidates were successful in the colour vision tests and 141 failed ; 69 of the latter were re-examined on appeal, of whom 29 passed and 40 failed.

* This includes time occupied in proceeding and returning to and from residence.—*Author.*

In the foregoing report, the following interesting cases are mentioned as showing how, in spite of the fact that officers have obtained Board of Trade certificates, they have been subsequently failed at the hands of examiners appointed by the Board.

From the Report on the Sight Tests used in the Mercantile Marine for the year ending 31st Dec., 1910. Presented to both Houses of Parliament by Command of His Majesty The King.

1910.					
Certificate Held.	Years at Sea.	Port of Exam.	Result.	Remarks.	
Second Mate, Nov., 1906,	10	Greenock.	Failed.		
O.C., 1890, - - -	29	Liverpool.	Failed.		
O.C., 1898, - - -	25	Dublin.	Failed.		
First Mate, 1908, - - -	8	Belfast.	Failed.		
O.C., 1897, - - -	25	London.	Failed.		
First Mate, 1909, - - -	15	London.	Failed.	Failed in Colour Vision. Appealed and passed.	
First Mate, 1897, - - -	14	West Hartlepool.	Failed.		
Mate, H.T., 1907, - - -	13	London.	Failed.	Red blind. Appealed and failed.	
O.C., 1898, - - -	25	Dublin.	Failed.	Appealed and failed.	
First Mate, 1907, - - -	11	Newport.	Failed.	Colour Vision. Appealed and passed.	
Second Mate, 1908, - - -	6	London.	Failed.	Colour Vision. Appealed and passed.	
Second Mate, 1909, - - -	6	London.	Failed.	Red blind. Appealed and failed.	
O.C., 1909, - - -	12	London.	Failed.	Appealed and passed.	
Second Mate, 1907, - - -	11	Belfast.	Failed.	Appealed and passed.	
Second Mate, 1908, - - -	12	Sunderland.	Failed.		
Second Mate, 1908, - - -	10	Dundee.	Failed.	Completely red blind. Appealed and failed.	
Second Mate, 1908, - - -	10	Southampton.	Failed.	Completely green blind. Appealed and failed.	

It will be seen from the above that in the majority of cases these officers had already spent a number of years at sea whilst holding Board of Trade certificates, yet they were subsequently considered incompetent.

ACTUAL CASES WHICH MAY SERVE TO SHOW DIFFICULTIES EXPERIENCED BY CANDIDATES AT SIGHT TEST EXAMINATIONS.

First Case.—An officer, after passing the form vision and colour test six times, was failed at London. He was told that though not really colour blind he would be rejected. He appealed against this, and was examined by Sir William Abney at South Kensington, and after going through a very unpracticable and confusing examination was again failed. He was asked by the Board of Trade to surrender his certificate as first mate. Up to the time of writing he has not done so.

Second Case.—A young officer who had obtained his master's certificate and passed all his examinations, when he was tried for extra master on appearing before the Board of Trade examiner he was failed. He had passed the colour test and form vision test on three previous occasions.

Third Case.—An officer holding a master's certificate was failed by the Board of Trade for his inability to read the fifth line type when up for the periodical sight test required by the company in which he served. He appealed and was examined at South Kensington, and again failed by the smallest margin. His employer sent him to sea in one of their steamers which proceeded on a coasting

voyage, and instructed the commander to test his eyesight and report to the chairman of the company. The master reported that he considered the officer had good sight, as he had given him practical tests both by day and night, and that his range of vision was perfect.

Fourth Case.—A chief officer, who had previously commanded his steamer, failed to read $3\frac{1}{4}$ in. type at 10 feet, yet his range of vision was super-excellent. The Board of Trade would not grant him a sight test certificate (although he held a master's certificate), and in order to satisfy himself that his sight was not sufficiently defective to make him dangerous as a navigator, he submitted himself to a practical test, and discerned the mast of the South Rock Light vessel before the hull became visible over the horizon. He also discerned Mew Island Light directly it was raised on the horizon, the range being 16 miles.

Fifth Case.—A young man having served his apprenticeship in a sailing vessel presented himself for a second mate's certificate at London. Captain —— examined and failed him in colours. He appealed and was brought before Sir William Abney at South Kensington, where he again failed. He was examined by an official of the Shipping Federation, and although he showed a little hesitancy he picked out the letters and matched them correctly. He was afterwards examined by a specialist who tried him with lantern slides. The result was that he picked out every light correctly, even when the shades of blue and green were scarcely noticeable. The gentleman who examined him admitted that he hesitated when the colours were

very fine, but he expressed the opinion that to announce him as being colour blind was an absolute absurdity.

Sixth Case.—On the recommendation of the Shipping Federation a young officer who was apprentice to Messrs. ———, Shipowners, Glasgow, had a certificate to say that his eyesight and colour vision was normal.

On 17th April, 1905, he was examined by a doctor who appends to his name the following degree—M.D., M.B., B.S., who gave the following certificate:—

“ I have this day examined Mr. ———, and find him to be in good health, robust, and free from disease. His vision for colour and form is normal.”

On 13th June, 1906, this gentleman joined the s.s. ——— as apprentice and remained in the firm until the 5th July, 1910. On 16th July he sat at the Board of Trade offices at Liverpool for examination on sight tests, and was informed that he failed to pass the colour vision test.

He gave notice of appeal to the Board of Trade in London against the decision, and in the meantime was examined by Dr. ———, who has had a large experience in testing railway men and others in colour tests, and who stated that Mr. ——— had passed his test satisfactorily.

The following extract is from the *British Medical Journal*, and is published in response to a letter directed him by the doctor who examined the Board of Trade candidates.

COLOUR BLINDNESS AND THE BOARD OF TRADE.

It is difficult to say why "C. H. J.'s" patient was rejected as colour blind by the Board of Trade. The tests applied by the Board are so obsolete and inadequate, and are employed with so little skill that it sometimes happens that persons with normal vision fail to pass the examination, while not a few dangerously colour-blind men satisfy the examiners. It is essential that seamen should have perfect vision in both eyes, and that they should be able rapidly to recognise red and green under all possible circumstances. Anyone showing the slightest hesitation in naming colours whether in the shape of coloured wools or lights, or who fails to match colours, should be unhesitatingly rejected. "C. H. J." should examine his patient with the Edridge-Green colour perception lamp; the ordinary wool tests are quite futile.

On 22nd August, 1910, the candidate was examined again at Sir William Abney's laboratory, Imperial College of Science, London. The wool test was given by Captain Harvey, Principal Examiner of Masters and Mates, and he was also examined by Sir William Abney with respect to lights. Subsequently he was informed by the Board of Trade that he had failed to pass the tests.

Seventh Case.—An officer holding the position as first mate of a steamer, and in possession of a master's certificate (O.C.) was told by the superintendent of the company in which he was serving that he was to get his sight tested. This he did, with a result that he failed in form vision. He was desired by the Superintendent of the Poplar Shipping Office, London, to surrender his certificate,

for which he offered to give him a simple receipt. He refused to surrender it at the time, but he subsequently did so, as the superintendent at the Poplar Shipping Office informed him that if he did not surrender it the Board of Trade would take further proceedings against him and compel him to do so. He passed the tests on three previous occasions, and had no difficulty in picking out coloured lights at sea and felt quite competent of performing his duties as an officer.

Being a married man with four children he finds it most difficult to obtain employment of any description on shore, on account of not being able to produce a certificate which would show the people unacquainted with the profession the position he would have been able to occupy had it not been for his misfortune.

Eighth Case.—Mr. X. joined the Head Line as a premium apprentice, but before signing indentures was passed by the Board of Trade examiners at Dublin as being quite fit to follow the sea as a profession. He was also passed by the Shipping Federation's physician at Middlesborough for both colour and form vision, and now holds a certificate given to him on that occasion. On presenting himself at London for his first examination he was passed on to Sir William Abney, and some time later was informed by the Board of Trade that he had failed in colour vision. After spending four years afloat, and causing his parents a considerable sum, they were obliged to take him away from the sea and find other occupation for him.

Ninth Case.—The following case came to the notice of the author in 1911. It is a standing order

in the well-known Union-Castle Line for all masters, officers, and deck hands to pass an annual sight test. A certain chief officer serving in that company was passed by Captain ——— on the 25th February, 1910, at Southampton. On the 17th April, 1911, he was again tried by Captain ———, who passed him in the form vision test, but after going through the colour vision test he said that he could not pass him. He appealed and appeared at South Kensington, when owing to his ship being about to leave and the company stating that they could not keep his place open, he requested the Board of Trade to inform him immediately whether he had passed or not. The examination at South Kensington consisted of the new form vision test with a class of about eight shades of different coloured wools, picking out colours from twelve to fourteen, the flickering light test in the dark room, matching lights, naming lights when they first appear the size of a pea, with the result that on the same evening of his arrival home he received a telegram as follows :—

“ You have passed special examination in colour vision (Board of Trade). ”

This officer had passed an annual test since 1904 until 1911, and at the age of 42 was put through such severe tests that had he failed he would have probably lost his livelihood.

OPINIONS EXPRESSED IN THE PRESS.

COLOUR BLINDNESS AND THE MERCHANT SERVICE.

Sir,

I should like very much to make a few warning remarks, through your widely-read columns, with regard to colour vision, for the benefit of those parents whose boys have a desire to adopt a sea career as a profession.

First of all, let me impress upon them that it is absolutely essential that the young sailor, whose ambition is to become a captain in the merchant service, should have a perfect knowledge of colours, especially in the form of light, owing to the ever-increasing risk of collision at sea.

What I really want to warn parents about is this, that at present shipowners as a rule do not make it compulsory for intending cadets or apprentices to show certificates stating that they have successfully passed the important colour test.

This should be made absolutely compulsory. Certainly, shipowners do say on their forms, printed for the benefit of intending sailors, that they should see that they are not colour-blind ; but this is as far as they go, with few exceptions.

My case is a good example to illustrate this, for I was so keen to get to sea that my parents, not knowing anything about the requirements of the life, only saw to my personal comforts, and no more details were gone into.

The result is that, after having completed four years' apprenticeship, I have unfortunately failed to pass the colour test, although I can pick out the primary shades.

This means, of course, that four of the most valuable years of my life have been wasted, and now I am practically unfitted to take up a position ashore, to say nothing of the money which my relations have spent on me during that period.

By this letter I do not mean to imply that ship-owners are wholly to blame ; but I do think that they should be considerate enough to make a special point of inquiring into this most important matter, more particularly as most parents are entirely ignorant of the more important requirements of a sailor's life.

AN ACTUAL EXPERIENCE.

Sir,

I should like to bring to your notice the fact that the Board of Trade have refused to allow me to sit for examination for my Chief Mate's Certificate, through alleged defective colour vision, which procedure I cannot understand, having already passed this test on two occasions.

It might be as well for me here to mention the dates. In July, 1904, previous to my going to sea, I passed the Board of Trade test both for colour and for form vision, and again when I obtained my Second Mate's Certificate in April, 1909, on which occasions no objections whatever were raised. Since obtaining this Second Mate's Certificate, I have also been in charge of a watch on board a steamer for the past sixteen months, and have never met with accident, nor been censured for mistaking lights. I might also say that, whilst going to sea between these dates, I was examined and passed by steamship companies' doctors upon no less than seven occasions.

I never had the slightest conception that there was anything at all wrong with my sight until I put in my application last Friday week, when the examination proceeded after this manner :—

The Examiner picked out a certain colour from a bundle of wools and *asked me to match that colour*. In my estimation I put in all the shades of this colour, which was green. The next shade taken was purple, and I was asked to match from amongst the wools all colours containing this shade. I, of course, included blue, which is a predominating colour in purple, although there is a certain amount of red in it. I was then tried with reds of various shades. I was kept at this for over half-an-hour, and probably during this time I picked out a hundred different shades of colour.

I consider that this examination is most unfair, as the Examiner heckles one considerably, especially so to any person who is of a nervous disposition, for however cool and collected an officer might be whilst in charge of a ship, he is very apt to become very nervous in the frigid atmosphere of a Board of Trade examination room. For instance, after picking out several shades, the Examiner worries one by saying, “*Go on, I can see plenty more of this colour ; pick them all out.*” This, to a nervous person, is apt to be very disconcerting.

The Examiner appeared to be very undecided about me, although he had passed me in the form vision examination, which was held in the following manner :—I was asked to put on what appeared to me to be a pair of motor goggles without glasses. A shutter is attached to them in the place of glass and the Examiner shuts up first one shutter and then

the other, alternately. Standing about 16 feet away, I was requested to read the type on a card, commencing with large letters and gradually coming down to much smaller ones. Apparently I was perfect in this as my application form to be examined by the Board of Trade has been endorsed :
 “ For Vision Test—New—Passed.”

I was not examined in Liverpool in colour ignorance, but I am by no means ignorant of colours. I am able to name and distinguish such shades as heliotrope, french grey, salmon, crimson, orange, yellow, terra cotta, cinnamon, light green, emerald green, dark green, red, blue, pale blue, dark blue, prussian blue, browns—various shades—in fact, with each I am perfectly familiar, and consider myself fully competent to name them before anyone.

The Examiner was not satisfied with the result in the colour test, and after keeping me for five days without a decided answer, he requested me to appear before Sir William Abney in London. I went before this gentleman last Friday, and was under “ *his special test* ” for over an hour. To commence with, when I entered the Imperial College of Science, I was first tested for form vision by an examiner other than Sir William Abney, and passed without the slightest difficulty. Then the same examiner tested me with coloured wools in a similar way to that examination which took place at Liverpool, the difference being that instead of being asked to “ *match the colours,* ” I was asked to “ *pick out lighter and darker shades* ” of the colour shown, *without including any shade which contained a mixture of any colour*, such as a green mixed with

yellow or a blue mixed with purple. There must have been considerable doubt amongst the examiners as to my incompetency, for it will be noticed that I was kept no less than an hour-and-a-half under these tests. Surely it would not have taken an ordinary person an hour-and-a-half to decide whether a man was colour blind or not ?

I consider that this test is a test for a person who is very conversant with colours, one might even say, an *expert* in colours. For instance, with a shade like heliotrope it is quite possible for one to include this amongst blue or even pink, according to the *tone* of the heliotrope. I am aware of a mistake I made in picking out a certain shade of wool, as it occurred to me afterwards that I had included a purple with a dark blue, for, as I before stated, purple contains a certain amount of red, although blue is the predominant colour. The examination lasted about thirty minutes.

After this Sir William Abney took me on what is termed "*his own special test*," which I will here endeavour to explain. To commence with, I was ushered into a small, stuffy room, perhaps twelve feet by six, and then Sir William operated with a lantern on a small white surface about one inch square, from which I was standing distant some five feet. On this square two lights were displayed side by side, say a red and green, gradually diverging through different shades into other colours. Whilst this operation was in progress, I was asked to name such colours as shown. After this a red and green light of different brightness was shown on the white surface, and the amount of light increased or decreased, at my direction, until (in my opinion)

equal. In the next test I was asked to stand about three feet further away from the screen, and lights about the size of a pin head were shown, and I was then to name the colour of these. The last test was several lights thrown on to a card in one continuous line, each light running into the other after the fashion of a rainbow. I was then requested to point out where each colour changed, and also to name the particular colours.

Another grievance is the silence maintained by the Board of Trade. I was kept ignorant for five days as to the result of my examination, that is, before going to London. Altogether, eleven days elapsed between the time of my application to the Board to be examined and receiving their final answer. The Board of Trade apparently forget that time means money to an officer of the merchant service. Surely some alteration might be brought about in this direction.

I am so confident that my colour vision is normal that I am prepared to meet an open challenge in a *practical* examination by any person, whether it be with wools, flags, or lights. My sight is perfectly clear and in my estimation there is no defect whatever in it. *It is quite possible that one might get fogged through being ignorant of the fancy colours of certain shades, but standard colours I am absolutely positive that I can name correctly.*

Furthermore, I consider that these tests are absolutely not tests at all. For instance, if a man is asked to *match* a certain colour; suppose, for the sake of argument that this colour may be an electric green. He is asked to *match* it, but this means he must, to the examiner's idea, pick out other shades

of green, whether it be an emerald green, dark green, light green, reseda green, sea green, bottle green, sage green, or, in fact, any colour that can be termed "green." To my mind, this is not a *match*. I would consider a match to be a colour that would absolutely harmonise or blend with the original, and certainly sage green would not do this with an "electric green."

Except a man is absolutely an expert in mixing colours it would be practically impossible for him to tell what colours were contained in certain shades. For instance, a pale yellow green, grading paler and paler, will eventually almost become a cream, and the same argument applies to very pale blue.

There are "bluey" greens which are very difficult to define to even a normal sighted person, as to whether they are blue or whether they are green. Unfortunately for myself I never lived near a dye works, where I might have acquired an expert education in this blending of fancy shades.

The Board have requested me to voluntarily surrender my certificate as Second Mate which they gave me on the 26th April last year, but I have absolutely refused to do this.

There is another fact I should like to lay stress upon and that is, that it is a very curious thing if, since last year my sight has become defective, when no defect was noticed by the master or officers of the ship upon which I have been serving, in charge of a watch. I am twenty-three years of age, and it is hardly possible that a man's sight can fail him at that age. The fact of my being promoted during my last voyage at sea would be sufficient

assurance for anyone that I was quite qualified to fulfil my duties in a professional way as a navigating officer and give perfect satisfaction. I have been in charge of a watch ever since the day I first joined the ship, making a voyage of sixteen months. No sensible shipmaster would leave a man in charge of a watch if he thought there was anything wrong with his sight ; and I do not consider the Board of Trade are justified in failing me for colour blindness, as a test such as Sir William Abney's *special* test and under such conditions, would confuse any individual, however perfect his faculty for distinguishing colours might be.

COMMANDER D. WILSON-BARKER'S OPINION.

An article in *Nature* for 18th August deals aptly with the question of testing for colour vision. It is to be hoped that the committee at present inquiring into the matter will advocate that testing should be carried out in future in conditions resembling as nearly as possible those on which seamen ordinarily follow their calling. It does not seem quite practical or fair to test indoors a man's ability to pick up lights in the open. The conditions of light inside and outside vary so much, as do those of inside and outside darkness. A sailor's business is not to match colours, but to pick up and distinguish instantly lights that may be seen far or near, through varying conditions of atmosphere.

The sight of the average seaman, from practice, is probably much keener than that of the average landsman. The sailor's eyes are trained to adapt themselves to varying conditions of outside darkness.

The suggestion of spectrum tests is good, provided that such testing is made supplementary only to the practical open-air tests, with flags by day and sidelights by night. The object of the tests is to ascertain the candidate's faculty for instant recognition of a flag or light, and there is no difficulty whatever in providing efficient practical tests. It is unnecessary, and even mischievous, to try to puzzle a candidate with combinations of lights and shades such as never occur in the course of his practical work.

It is to be hoped that the committee which is investigating the matter will allow common sense and practical ability to rule its recommendations for future examinations.

EXPERIENCES OF A CANDIDATE BEING TESTED AT SOUTH KENSINGTON.

On being re-examined on appeal for sight test I duly presented myself at the laboratory, South Kensington.

First Test consisted of a colour being thrown on a screen and a second colour being shown immediately alongside of it. Various shades are given, and the candidate is asked to say "stop" when the moving colour matches the fixed colour.

Second Test consisted of a moving colour being thrown on the screen, and the candidate is asked to name the colour when the light stops flickering.

The wool test is then given as at the Board of Trade examinations.

Then comes the spectrum test. A candidate is asked to look through the spectrum and turn the handle until the lower half of the colour matches

the upper half, which is permanent. The test is given with a strong light and a faint light.

Next to this comes the lantern test. A light, either red, white, or green is shown in a mirror the size of a pin head, which is supposed to represent the side lights of a vessel seen at 2,000 yards.

Another test consists of 18 assorted colours being placed on a card, each colour being numbered. The candidate is asked to name each colour according to the numbers such colours represent.

Another test is to distinguish certain numbers that are only printed on a background which has a faint colour designed. Unless a person is very keen-sighted, it is somewhat difficult for him to pick out these numbers.

The last test is for form vision as given at the Board of Trade examinations.

BOARD OF TRADE EXAMINATION.

COLOUR TEST.

	Wools.			
First Test, -	-	-	-	Light Green.
Second Test, -	-	-	-	Pink.
Third Test, -	-	-	-	Dark Brown.
Fourth Test, -	-	-	-	Purple
Fifth Test, -	-	-	-	Yellow.

In these tests a candidate will be required to select all greens, pinks, browns, purples, and yellows. There will be one group of wools for *each test*. Each group must be divided in two parts, *i.e.*, all wools which resemble in colour the test skein and those which do not.

There is no exact match for each skein, all wools are either lighter or darker than the test skein.

Be careful to see that you do not mix with the test any wools *which do not* contain the colour or at least a portion of the colour used in the test skein.

CANDIDATES DEFECTIVE IN COLOUR VISION.

1909.

Complete red blindness, - - -	32
Incomplete red blindness, - - -	17
Complete green blindness, - - -	42
Incomplete green blindness, - - -	21
	<hr/>
Total for the year, - - -	<u>112</u>

During the same period 56 candidates failed in Form Vision.

1910.

Candidates failed in Form Vision, -	109
Candidates failed in Colour Vision, -	112
	<hr/>
Total failures for 1910, - -	<u>221</u>

The above are from official figures supplied by the Board of Trade.

First Test—Green.—This is a *light green*. In this group there are yellow greens, sage greens, blue greens, blues, greens, and greenish blue ; there is also a greenish yellow, etc.

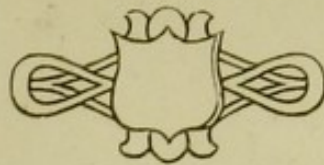
Second Test—Pink.—This is a *light salmon pink*. In this group there are light reds, dark reds, carmine, madder pink, reddish brown, etc.

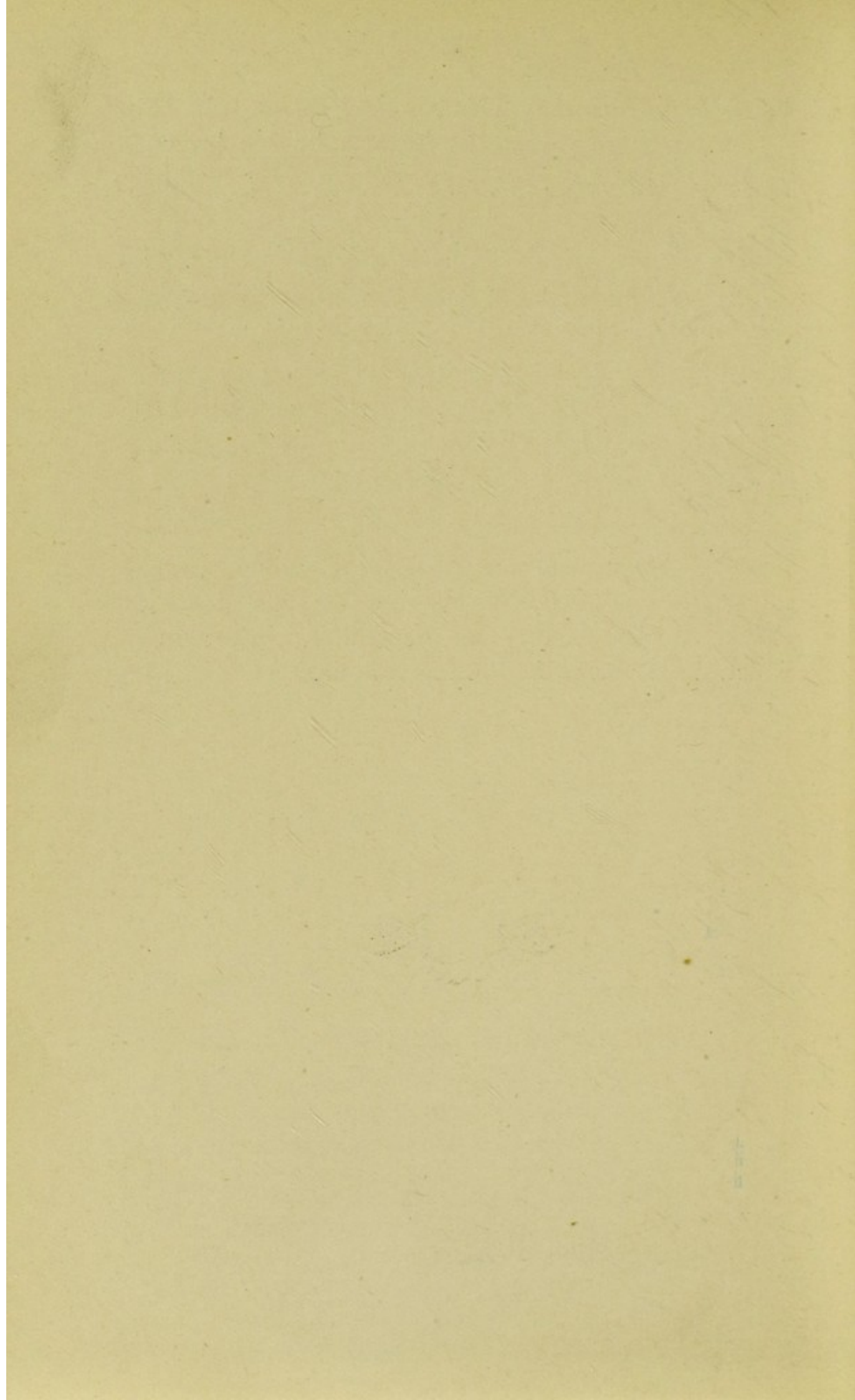
Third Test—Brown.—This is a *dark brown*. In this group there are reddish browns, bronze browns, fawns, drabs, sage grey, smoke grey, reddish grey, etc.

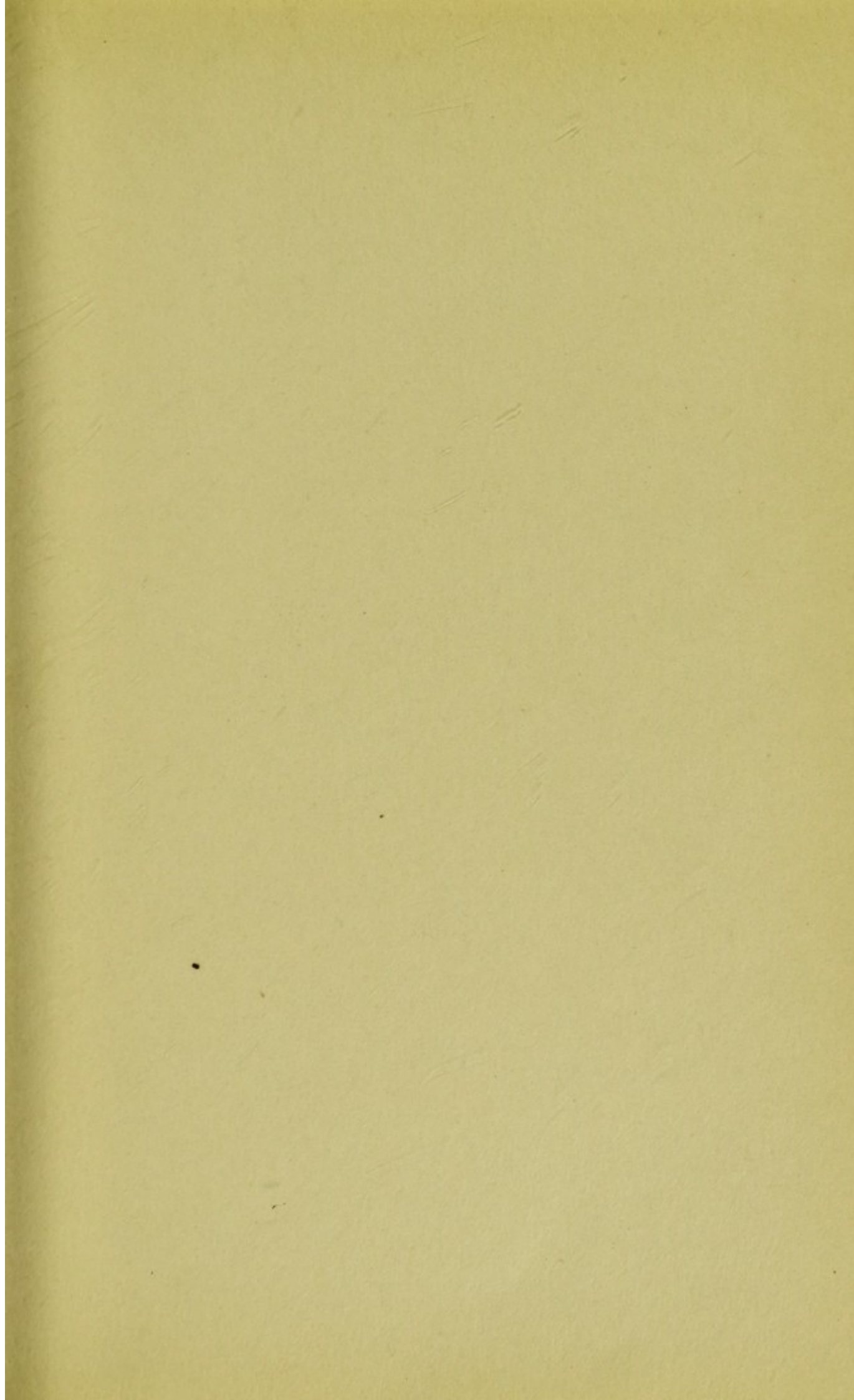
Fourth Test—Purple.—This is a *bright purple*. In this group there are dark purples, light purples, violets, blues, etc.

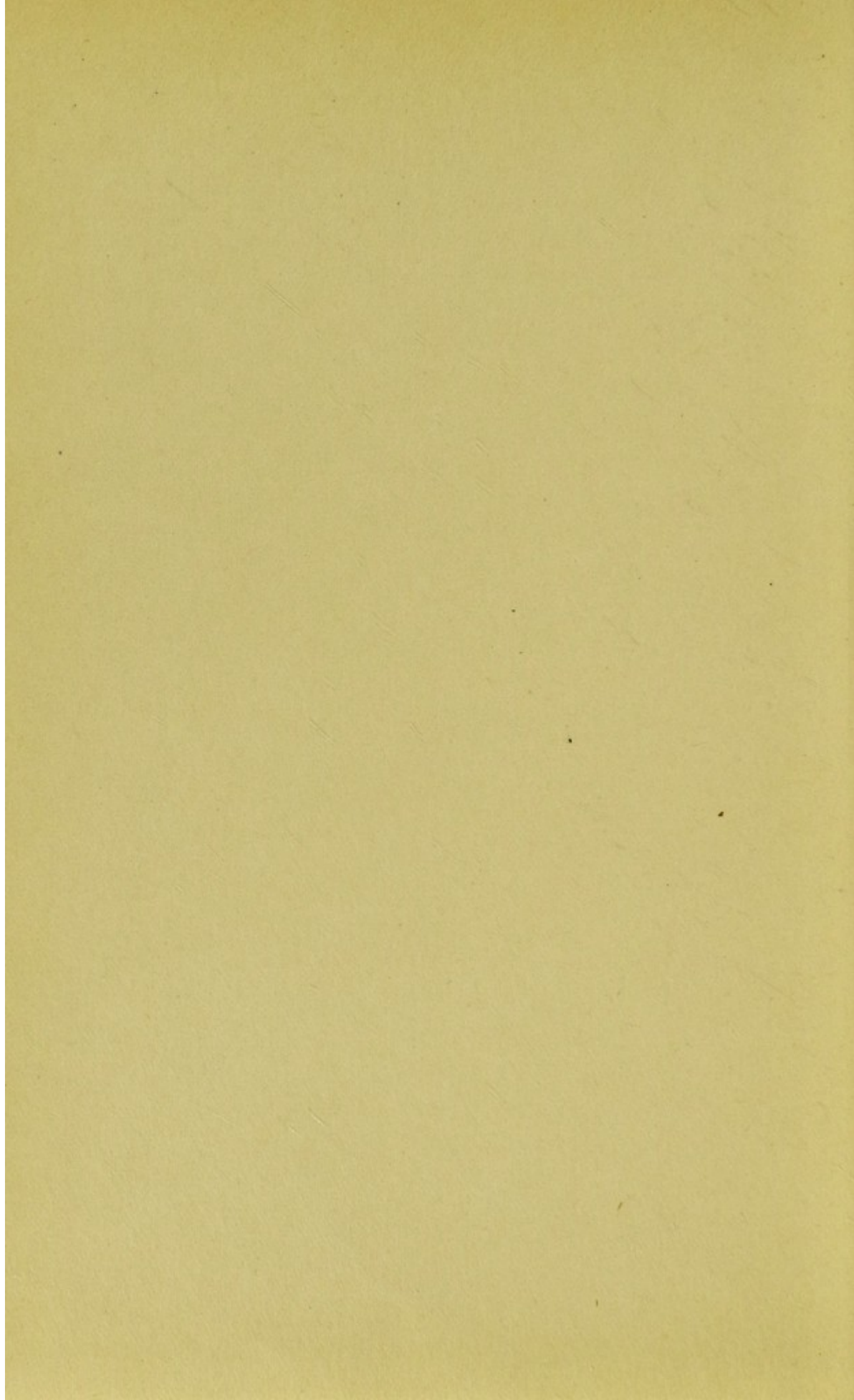
Fifth Test—Yellow.—This is a *bright canary yellow*. In this group there are light yellows, dark yellows, light orange, dark orange, yellow greens, and greenish yellows.

NOTE.—You need not name these colours, simply select the one you consider contains the colour of the first test skein. Be careful to select none which do not contain the test colour.









AMENDMENT to Captain D. H. Bernard's Book "ALL ABOUT THE SIGHT TESTS." Published by James Brown & Son, Glasgow.

EYE-SIGHT TESTS.

LATEST BOARD OF TRADE REGULATIONS.

SINCE the book *All About the Sight Tests* was issued, New Regulations have been made by the Board of Trade, which came into force in September, 1913. Instead of having each eye separately tested in the form vision test, the candidate can, if he so desires, read the test card with both eyes, but any candidate going up for a certificate of competency for the first time will be required to undergo the vision test, which includes the *new lantern test* as mentioned in the pages of this book, *as well as the wool test*, which is also fully described. If a candidate passes an examination as second mate he will not be any longer required to undergo a further examination in any *colour vision test* (including the lantern test). He will, however, require to undergo the sight tests in the ordinary way and can choose to read the test card *with both eyes*. The following are the new regulations :—

SIGHT TESTS.

Every candidate for a certificate of competency must pass the prescribed sight tests before a certificate can be issued to him. If circumstances render it necessary for him to proceed with the examination in navigation and seamanship before undergoing the sight tests, he should be informed that the examination in navigation and seamanship *will be*

cancelled in the event of his failure to pass either of the sight tests.*

FORM VISION.

(1) *Form Vision Test*.—Every candidate for a certificate must pass the form vision test. If he presents himself for examination before 1st January, 1914, he will only be required to possess half normal vision using both eyes together. A candidate who has obtained a certificate before that date will be allowed to obtain his higher certificates on the *same standard* of vision.

Any candidate may, and every candidate presenting himself for examination for his first certificate on or after 1st January, 1914, must pass a higher standard, viz., *normal vision using both eyes or either eye separately*.

Any candidate who has obtained his first certificate under these conditions may obtain his higher certificates, provided that he has *normal vision using both eyes or either eye separately*.

THE COLOUR TESTS.

(2) *Colour Vision Tests*.—These tests comprise a wool test and a lantern test.

Every candidate must undergo the colour vision tests on the first occasion on which he presents himself for examination for a certificate of competency, but, if he then passes, he will not be required by the Board of Trade to undergo the colour vision tests on any subsequent occasion. No person who holds a certificate of competency should be allowed to be examined in colour vision.

IN THE EVENT OF FAILURE.

(3) A candidate who fails to pass the prescribed form vision test may present himself for re-examination at

* So that candidates can test for form vision the letters as used by the Board of Trade are included in the amended edition of this book.—AUTHOR.

intervals of three months. A candidate who fails to pass the colour vision test, or who is referred by the local examiner for further examination in London, is not allowed to be re-examined locally. In the case of a candidate who is referred for further examination the Board of Trade will make arrangements for a special examination in London, and it is also open to any candidate who is adjudged to have failed in the local colour vision test, to appeal to the Board, who may, if they think fit, remit the case to a special body of examiners for decision.

TRAVELLING EXPENSES.

(4) The Board of Trade will repay, at a rate which will be notified to the candidate, the travelling expenses of any candidate who is referred for further examination, as well as the travelling expenses of any candidate who, having appealed against local failure, is reported by the special examiners to have passed. No payment whatever will be made towards the expenses of candidates who, upon their own application, are examined by the special examiners, and are reported by them to have failed, unless the Board of Trade consider that the particular circumstances of the case justify such payment.

HOW TO APPEAL.

(5) When a candidate fails to pass the local colour vision test, the examiner will point out to him the conditions under which he can appeal. Appeals are to be made through the examiner, and forwarded to the Board of Trade with the examiner's remarks.

EXAMINERS TO PASS.

(6) Only examiners who have themselves passed the colour vision tests are to undertake the local examinations.

FEE FOR EXAMINATIONS.

(7) The fee paid for examination for a certificate of competency includes the fee of one shilling for examination in form and colour vision, and if the candidate fails to pass those tests, this fee will, with the exception of one shilling, be returned to him.

SPECIAL EXAMINATIONS ALLOWED.

(8) No additional fee will be charged to any candidate referred by the local examiner for special examination or for the special examination allowed to a candidate who appeals against failure locally. If, however, a candidate, who has been reported by the special examiners as having failed, is still dissatisfied, it will be open to him, if he so desires, to present himself for a second special examination on payment of a fee of five guineas, provided that he brings with him a friend to witness the examination. This second examination will, however, be entirely voluntary, and will form no part of the Board's examination for a certificate of competency. The Board of Trade will, however, give consideration to the result of such examination in determining whether a certificate shall be granted.

BOARD OF TRADE RECOMMENDATIONS.

The sight tests are open to all persons serving or intending to serve in the Mercantile Marine, and all such persons are recommended to take the earliest opportunity of ascertaining whether their vision is such as to qualify them for service in that profession. Any such person, if desirous of undergoing the tests, must make application to the superintendent of a Mercantile Marine Office on the form Examination 2A, and must pay a fee of one shilling. This fee will be payable on each occasion on which a candidate is examined.

APPENDIX O.

THE SIGHT TESTS.

These tests must be conducted under the strict personal supervision of the examiner. A careful record must be kept of all mistakes made by the candidate in the form vision test, and on *no account whatever* must a candidate be allowed to make his selections in the colour vision test during any temporary absence of the examiner.

RECORDS TO BE KEPT.

Each examiner must keep a record of all candidates passed by him for reference when required.

FORM VISION TEST.

(1) FORM VISION TEST TO BE PASSED FIRST.—The first test which the candidate is required to undergo is the test for form vision, and until he has passed this test he must not be allowed to proceed further with the examination.

(2) APPARATUS USED.—The form vision test to be used for all candidates is that conducted on Snellen's principle by means of sheets of letters. Sets of eight of these sheets are supplied to examiners.

(3) OBJECT OF THE TEST.—The object of the form vision test is to determine whether the candidate can reach a sufficient standard of visual acuteness, or, in other words, to find out whether his eyesight is good or bad.

(4) STANDARD OF VISION REQUIRED.—With the exceptions indicated below (*see* paragraph 8), every candidate for a first certificate of competency will be required to possess normal vision. Every candidate for a second or higher certificate will be required to possess normal vision.

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

(5) SPECTACLES NOT ALLOWED.—During the examination for form vision candidates must not be allowed to use spectacles or glasses of any kind, or any other artificial aid to vision.

(6) METHODS OF TESTING.—The test sheets should be hung on the wall *in a good light, but not in direct sunlight*, at a height of 5 feet or 6 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 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, and the entry “5/5” should be made in the appropriate column of the form of application (Examination 2 or Examination 2A as the case may be.)

(7) PASSING OR FAILURE.—If at the conclusion of the test the candidate is found to reach the required standard, he may be considered to have passed, and the examiner should proceed to test him for colour vision. If the candidate fails to reach the standard required for the certificate entered for, he should be tested with at least four sheets, and the examiner should fill in a form Examination 17B, and should forward it, with any remarks he may wish to make, to the principal examiner for his instructions as to whether the candidate is to be regarded as passing or as failing in form vision.

(8) LOWER STANDARD REQUIRED IN CERTAIN CASES.—Candidates examined before 1st January, 1914, and also candidates examined on or after that date, who are already in possession of certificates obtained before that date, may

be regarded as passing in form vision if they can read correctly with both eyes at least five of the eight letters in the fifth line of a test sheet.

(9) TESTS TO BE VARIED.—The examiner should take care by varying the order of the test sheets and by every other means in his power, to guard against the possibility of any deception on the part of the candidate.

(10) RESULT OF EXAMINATION TO BE REPORTED.—The result of every examination in form vision should be reported, in the case of a candidate for a certificate of competency, to the Registrar-General of Shipping and Seamen on form Examination 2, and to the Principal Examiner of Masters and Mates on form Examination 14, and, in the case of a candidate for the sight tests only, to the Registrar-General of Shipping and Seamen on form Examination 2A.

The foregoing regulations also apply to the examination of skippers and second hands on fishing vessels.



