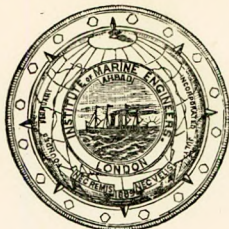


INSTITUTE OF MARINE ENGINEERS
INCORPORATED.

SESSION



1898-9.

President: JOHN INGLIS, ESQ., LL.D.

TENTH ANNUAL VOLUME

COMPRISING

PAPERS READ AND DISCUSSIONS HELD

During the Session ending January 31st, 1899,

ANNUAL REPORTS, FINANCIAL STATEMENT,

PRESIDENT'S ADDRESS, &c.;

ADDITIONS TO CATALOGUES,

LIST OF MEMBERS, OBITUARY.

STRATFORD:

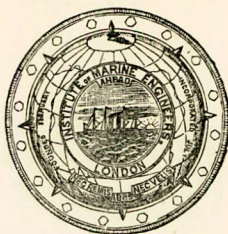
WILSON AND WHITWORTH, LTD., BROADWAY.

Published at the Premises of the Institute, 58, Romford Road.

INSTITUTE OF MARINE ENGINEERS

INCORPORATED.

SESSION



1898-9.

President : JOHN INGLIS, ESQ., LL.D.

VOLUME X.

List of Papers Read and Table of Contents.

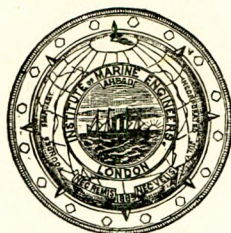
DATE.	TITLE.	NO.	AUTHOR.
March 24th, '99 ...	Report of Annual Meeting, Reports and Financial Statement Additions to Library, Property, &c. List of Members. Obituary		
Feb. 14th, '98 ...	Thermodynamics of the Steam Engine	LXXIII.	R. D. KEAY (Member).
March 14th, '98 ...	Paddle Wheels	LXXIV.	A. E. MILLS (Member).
April 4th, '98 ...	Marine Boilers and Steam Pipes...	LXXV.	J. F. WALLIKER (Member).
March 28th, '98 ...	Boiler Scale and Incrustation ...	LXXVI.	J. G. HAWTHORN (Member).
April 25th, '98 ...	Water Tube Boilers	LXXVII.	G. HALLIDAY (Member).
Oct. 10th, '98 ...	The Marine Engineer	LXXVIII.	JAS. ADAMSON (Hon. Sec.)
Oct. 12th, '98 ...	Annual Dinner Reports		
Nov. 14th, '98 ...	Feed Water Heaters	LXXIX.	G. HALLIDAY (Member).
Dec. 12th, '98 ...	Electric Light Stations	LXXX.	N. APPELBEЕ (Assoc. Member).
„ „ ...	Electric Traction	LXXXI.	Prof. ELLIOTT, D.Sc. (Pres. B.C.C.)
Jan. 23rd, '99 ...	The President's Address ...		JOHN INGLIS, Esq., LL.D.
*Jan. 25th, '99 ...	Auxiliary (Cargo) Machinery ...	LXXXII.	E. NICHOLL (Member).

* Read at Cardiff on this date.

INSTITUTE OF MARINE ENGINEERS

INCORPORATED.

SESSION



1898-9.

President: JOHN INGLIS, ESQ., LL.D.

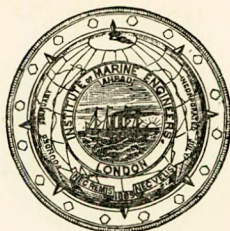
List of Authors and Papers Read.

DATE.	AUTHOR.	TITLE.	NO.
Oct. 10th, '98 ...	JAS. ADAMSON (Hon. Sec.) ...	The Marine Engineer ...	LXXVIII.
Dec. 12th, '98 ...	N. APPELBEE (Assoc. Member) ...	Electric Light Stations ...	LXXX.
" "	Prof. A. C. ELLIOTT (Pres. B.C.C.) ...	Electric Traction ...	LXXXI.
April 25th, '98 ...	G. HALLIDAY (Member) ...	Water Tube Boilers ...	LXXVII.
Nov. 14th, '98 ...	G. HALLIDAY (Member) ...	Feed Water Heaters ...	LXXIX.
March 28th, '98 ...	J. G. HAWTHORN (Member) ...	Boiler Incrustation ...	LXXVI.
Jan. 23rd, '99 ...	JOHN INGLIS, Esq., LL.D.	The President's Address	
Feb. 14th, '98 ...	R. D. KEAY (Member) ...	Thermodynamics of the Steam Engine ...	LXXIII.
March 14th, '99 ...	A. E. MILLS (Member) ...	Paddle Wheels ...	LXXIV.
*Jan. 25th, '99 ...	E. NICHOLL (Member) ...	Auxiliary (Cargo) Machinery ...	LXXXII.
April 4th, '98 ...	J. F. WALLIKER (Member) ...	Marine Boilers and Steam Pipes...	LXXV.

*Read at Cardiff on this date.

INSTITUTE OF MARINE ENGINEERS
INCORPORATED.

SESSION



1898-9.

President: JOHN INGLIS, ESQ., LL.D.

REPORT
OF
THE PROCEEDINGS
AT THE
ANNUAL MEETING

HELD AT

58, ROMFORD ROAD, STRATFORD,

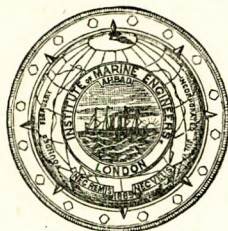
ON FRIDAY, MARCH 24TH, 1899.

CHAIRMAN - - MR. S. C. SAGE.

INSTITUTE OF MARINE ENGINEERS

INCORPORATED.

SESSION



1898-9.

PROGRAMME OF TENTH ANNUAL MEETING

AT

58, ROMFORD ROAD, STRATFORD, E.,

FRIDAY, MARCH 24th, 1899.

CHAIRMAN - - - MR. S. C. SAGE.

The CHAIRMAN.

Appointment of Scrutineers—

Proposer, Mr. F. COOPER.
Seconder, Mr. C. NOBLE.

The Annual Report—

Mr. JAS. ADAMSON (*Hon. Secretary*).
Mr. GEO. SLOGGETT
(*Hon. Sec. Bristol Channel Centre*).
Mr. JOHN GRIFFITHS
(*Hon. Sec. Southampton Centre*).

Financial Statement—

Mr. F. W. SHOREY (*Hon. Treasurer*).

Adoption of Reports—

Proposer, Mr. A. BOYLE.
Seconder, Mr. J. LANG.

Vote of Thanks to the Retiring President,

Proposer, Mr. A. BOYLE.
Seconder, Mr. R. ADAM.
Response—The PRESIDENT.

Vote of Thanks to Office Bearers and Council,

Proposer, Mr. A. BROWN.
Seconder, Mr. W. LAWRIE.
Response, The HON. SECRETARY.

Vote of Thanks to the Auditors—

Proposer, Mr. J. T. SMITH.
Seconder, Mr. W. McLAREN.
Response, Messrs. T. F. AUKLAND and J. B. JOHNSTON.

Vote of Thanks to the Hon. Solicitor—

Proposer, Mr. F. W. SHOREY.
Seconder, Mr. S. C. SAGE.
Response, Mr. J. NEELY (*Hon. Solicitor*).

Report of Scrutineers—

Messrs. A. H. MATHER and J. KIRKLAND.

Vote of Thanks to Scrutineers—

Proposer, Mr. J. W. RICHARDSON.
Seconder, Mr. J. ANDERSON.
Response, Messrs. A. H. MATHER and J. KIRKLAND.

Appointment of Auditors—

Proposer, Mr. C. G. WILSON.
Seconder, Mr. J. R. RUTHVEN.

Vote of Thanks to Chairman—

Proposer, Mr. R. LESLIE.
Seconder, Mr. J. G. HAWTHORN.
Response, The CHAIRMAN.

INSTITUTE OF MARINE ENGINEERS INCORPORATED.

SESSION



1898-9.

President: JOHN INGLIS, ESQ., LL.D.

REPORT OF THE PROCEEDINGS
AT THE
ANNUAL MEETING
AT
58, ROMFORD ROAD, STRATFORD,
ON
Friday, March 24th, 1899.

CHAIRMAN :
MR. S. C. SAGE (*Chairman of Council*).

The CHAIRMAN : We have met here to-night to celebrate another anniversary of the foundation of our Institute, and although I am sorry there is not a crowded attendance, I am pleased, on behalf of the Office Bearers and Members of Council, to see those who are present. We will commence the business at once by calling for the appointment of Scrutineers.

Mr. F. COOPER (Member) moved, and Mr. C. NOBLE (Member of Council) seconded, that Mr. A. H. Mather and Mr. J. Kirkland be appointed Scrutineers.—This was agreed to.

The CHAIRMAN : I will now call upon the Honorary Secretary to read the annual report.

The HONORARY SECRETARY : It is matter for great regret both to us and to Dr. Inglis that he is not here to-night. Our regret is increased with the knowledge that it is the health of the President which has debarred him from being present in London at this time, as he intended. The report of the Council is as follows :—

TENTH ANNUAL REPORT.

On reviewing the past Session we have pleasure in giving to the members of the Institute, a Report of steady progress and increasing membership, and while doing so, invite special attention to several details which should be carefully considered in the interests of future progress and enterprise, in the hope that everyone will endeavour to do what he can to advance the aims, and encourage the work in its details.

MEMBERSHIP.—While we can report an increase in the number of members, we have also to place on record 13 losses by death, since our last report, to January 31st, 1899. The names are as follows :—

THOS DUFF (Member), died at New York, U.S.A., September, 1898, formerly Chief Engineer in the National Line, latterly in business in New York.

H. EAGLESOM (Member), Chief Engineer ss. *India*, and in the service of the British India Co. for 20 years, was accidentally drowned at Adelaide, having fallen off the steamer overboard, March 7th, 1898.

W. ELLIOTT (Member), who had recently returned from India on leave to recruit his health, died near Dunoon, N.B., April, 1898.

F. FERGUSON (Member), drowned at Belfast, October 18th, 1898, having slipped from the gangway of the ss. *Langton Grange*, which he had but recently joined. Ex-Chief Engineer in the National Line, and in that service for over 16 years.

D. HENDERSON (Member), one of the early enrolled members, who returned in bad health from Japan, and died shortly after he reached home at Cardross, N.B., August, 1898.

J. N. HAWKS (Member), accidentally drowned at Antwerp, eldest son of Mr. N. S. Hawks (Member), with whom great sympathy was expressed in the sad circumstances. The event occurred in December, 1898.

A. McMILLAN (Member), in the service of the British India Co. for 16 years. Having been ill during his last voyage, he remained at home and died shortly after the steamer in which he was employed sailed, at Forest Gate, Essex, April, 1898.

C. E. MITCHELL (Associate), who was employed on the Indian Coast Service of the British India Co., was lost after a collision between two steamers in May, 1898.

D. MEIKLEREID (Member), a notice of whose death on April 1st, 1898, was received before last year's meeting and was reported then.

F. W. MOLLETT (Member), associated with the Southampton Centre, died at Southampton, October, 1898.

G. L. MORGAN (Member), died January, 1899, formerly Second and Chief Engineer in the National Line, but lately in the service of the Shire (Japan) Line (Author of "Coal," Paper No. 13, Vol. II).

J. W. NISBET (Member), whose death was also referred to in last report, died at Cardiff on March 30th, 1898.

F. W. WYMER (Member), who recently retired from the Board of Trade on a well earned pension, died at Leytonstone, Essex, November, 1898. Mr. Wymer was a well-known member, much respected and universally esteemed.

These removals by death during the Session number 13. In addition to these there have been 11 resignations, and two removals by lapse of membership through non-payment and non-acknowledgement of notices, a matter to which the attention of members is specially directed to prevent disappointment, and also that changes of address should be recorded.

Since our roll for the past Session was made up, we have received with great regret, intimation of the death of JAS. PHILLIPS, retired Chief Engineer P. & O. Co., in which service he was Chief Engineer for 29 years, and of WM. SMITH, Chief Engineer in the P. & O. Co.'s service for 23 years. Both of these deaths occurred in February, 1899; also that of W. M. TAYLOR, late in the service of Pacific Steam Navigation Company, at Tilbury, intimation of which has just reached us.

The increase and deductions in the membership has been made up as follows:

	Totals	Elected	Deaths	Resig- nations.	Re- movals
Members ...	758	50	12	10	2
Associate Members	72	6	—	—	—
Associates ...	77	6	1	—	—
Graduates ...	68	3	—	—	—
Companions ...	60	13	—	1	—
	<u>1035</u>	<u>78</u>	<u>13</u>	<u>11</u>	<u>2</u>

During the previous Session, 1897-8, the increase to the Membership by Election, was 55. During 1898-9, the increase has been 78.

The PROPERTY of the Institute has been added to in the past year as per catalogue. Special mention should be made of the gift of an experimental apparatus by Mr. Joseph Hallett, (Member), and of the promise of another apparatus (now being made) by the Editor of the "Engineer."

These gifts were suggested as a result of the discussions held on Water Tube Boilers, Coal Combustion and Feed Heaters; and to show the appreciation in which these gifts are held, a special committee has been appointed to conduct experiments and to investigate results from such, and to extend operations in this direction as the way opens up.

PAPERS AND DISCUSSIONS.—Ten* Papers have been read and discussed, the meetings being held, as usual, on the Second and Fourth Mondays of each month during the Session. These papers are printed, and as the discussions are completed they will be issued to the members. The attendance at the meetings has not been as large as is desirable, and it is requested that the DAYS OF MEETING BE NOTED.

The Papers read during past Sessions can be obtained either in volume or in pamphlet form; to preserve them, Members desirous of having their papers bound in the volume form, can have this done at 3/6 per copy, 49 volumes have been bound during the past Session. As so many papers which have been posted on to members have been returned to the Institute marked "not found," Members should notify at once any change of address.

PAPERS READ.

NO.	DATE.	TITLE.	AUTHOR.
73	14th Feb., '98	The Thermodynamics of the Steam Engine	R. D. KEAY (Member)
74	14th Mar., '98	Paddle Wheels 	A. E. MILLS (Member)
75	4th Apr., '98	Marine Boilers and Steam Pipes	J. F. WALLIKER (Member)

* Including a Paper on Electric Traction, by Prof. A. C. Elliott, D.Sc.
(President B.C.C.)

PAPERS READ—*Continued.*

NO.	DATE.	TITLE.	AUTHOR.
76	28th Mar., '98	Boiler Scale and Incrustation	J. G. HAWTHORN (Member)
77	25th Apr., '98	Water Tube Boilers... ..	G. HALLIDAY (Member)
78	10th Oct., '98	The Marine Engineer	JAS. ADAMSON (Hon. Sec.)
79	14th Nov., '98	Feed Water Heaters	G. HALLIDAY, (Member)
80	12th Dec., '98	Electric Lighting Stations	N. APPELBEE (Assoc. Memb.)
81	12th Dec., '98	Electric Traction	Prof. ELLIOTT, D.Sc. (Pres. B.C.C.)
82	*25th Jan., '99	Auxiliary Machinery (Cargo Work)	J. NICHOLL (Member)

EDUCATIONAL.—In place of the classes carried on during former years, Lectures have been delivered by Mr. J. G. Hawthorn, on the First and Third Monday evenings of the months of October, November, December, and January, specially for the junior membership.

EDUCATIONAL DEPARTMENT.

LECTURES DELIVERED

By J. G. HAWTHORN (*Convener.*)

NO.	TITLE OF LECTURE.	DATE.
1.	Coal and Combustion	17th Oct., 1898.
2.	Heat Transmission and Formation of Steam	31st Oct., 1898.
3.	Distribution of Heat and Expansion of Steam	7th Nov., 1898.
4.	Boiler Construction, including a Survey on an old Boiler	21st Nov., 1898.
5.	Putting Engines into Ship	12th Dec., 1898.
6.	Slide Valve and Slide Valve Setting, including Indicator Diagrams	16th Jan., 1899.

THE READING ROOM AND LIBRARY, have been kept open to members both during the day and evening.

* Read at Cardiff (B.C.C.) on this date.

Technical literature has been well supplied for the reading room table, and the library has also been added to, as will be seen from the catalogue, several members having contributed to the value of the library.

PRESS CUTTINGS, containing records of notable incidents of technical progress, or of special interest to Marine Engineers are invited from members. A Book is specially reserved for such records, and has been utilised to some extent in the course of the Session, and forms a valuable repository for reference.

THE RECREATION COMMITTEE had, as usual, the charge of the arrangements in connection with the social events of the year. The Annual Dinner was held on Wednesday, October 12th, when the President presided. The Report of the proceedings has been already issued to the Membership. The other social event was the Annual Conversazione, held on Friday, January 20th, 1899, in the Town Hall, Stratford, E., when the President and Mrs. Inglis attended, and the whole proceedings were, as in previous years, exceedingly pleasant.

THE PRESIDENT'S ADDRESS was delivered in the premises of the Institute, on Monday, January 23rd, 1899, on which occasion Dr. Inglis was supported by the first President of the Institute (Mr. Asplan Beldam), the immediate past President (Sir J. F. Flannery, M.P.), and the past President midway between (Sir William H. White), who occupied the Chair. The lecture hall was well filled, and suggestions as to the desirability of an enlargement of the accommodation were obviously tendered by the assembly.

The status of the Engineers of the Navy has been receiving a good deal of attention during the past year, and as it is quite clear from the notices and evidence set forth in the Press that a considerable improvement in the position is necessary, it is hoped that the subject will be satisfactorily dealt with immediately.

The recommendation urged in former years that the Engineer in Chief should be accorded a seat on the Board of Admiralty has been also strongly advocated, and the desirability of such an appointment has been so made manifest that the accomplishment appears within measurable distance.

The question raised by the Institute some years ago, and discussed from time to time, on the subject of the practical experience necessary for Junior Engineers before qualifying for their first Certificate, has been under the consideration of the Board of Trade, and a copy of the proposed alterations has been forwarded, that the views of the Institute may be submitted before these alterations are ratified. It is proposed to discuss this subject at an early date.

In view of the Exhibition to be held in Paris in 1900, the Institute has been invited to co-operate with a Committee formed to arrange a Conference on the subjects of scientific and technical interest,—as such appears desirable, it will fall to be considered in the course of the new session what action should be taken in regard to this.

The Sanitary Institute Members have arranged a visit to Southampton in August, when papers will be read and works of interest inspected, the Institute has been invited to send representatives to take part in the proceedings. Exchange of Transactions has been arranged, by request, with the Institution of Civil Engineers of France, and by special request of the Agent-General of Queensland, bound Volumes of the Transactions have been forwarded to the Brisbane (Queensland) Library.

On behalf of the Council.

JAS. ADAMSON,

Hon. Secretary.

INSTITUTE OF MARINE ENGINEERS. (SESSION 1898-99.)
BALANCE SHEET, 31st JANUARY, 1899.

Liabilities.

	£	s.	d.
To Sundry Creditors	204	10	9
" Subscriptions in advance for Session 1899-1900	178	11	4
" Denny Gold Medal Fund	261	13	4
" Stephens' Legacy Fund and Interest, at 2½ %	102	10	0
" Interest on Consols Accumulated Fund—			
£ s. d.			
Interest, 1898	1	19	11
Add for year 31st January, 1899	7	19	8
	9	19	7
Less Interest on Stephens' Legacy	2	10	0
			7 9 7
" Revenue Account—			
Balance 1st February, 1898	2019	11	0
Less Stephens' Legacy	100	0	0
	1919	11	0
Less Interest on Consols	1	19	11
	1917	11	1
Add Excess of Income, 1898	67	2	5
			1984 13 6
	£2739	8	6

Assets.

	£	s.	d.
By Cash at Bank	404	9	6
" Petty Cash in hand	1	3	8
" Consols, 2½ %, £300 at 112½ (cost)	336	7	6
" Freehold of Institute Buildings, 58, Romford Road, at cost, with extension	1500	0	0
" Furniture, &c., at Institute—			
£ s. d.			
Balance 1st February, 1898	274	8	4
Less Depreciation, 5 %	13	14	5
	260	13	11
" Additions, Alterations, and Repairs to Institute—			
Balance 1st February, 1898	256	13	11
Additions	5	4	0
	261	17	11
Less Depreciation, 10 %	26	3	10
	235	14	1
" Insurance, unexpired	0	19	10
	£2739	8	6

We have examined the above Balance Sheet, and compared it with the Books and Vouchers, and certify it to agree therewith.

FEAST, DRAKE & Co.,
 St. George's House, 6 & 8, Eastcheap, London, E.C.

March 2nd, 1899.

REVENUE

Dr.

1st February, 1898, to

	£	s.	d.	£	s.	d.
To General Expenses—						
Bank Charges	0	12	4			
Postages	14	2	5			
Telegraphic Address	1	1	0			
Inscription on Medal	0	2	6			
Engrossing Certificates	2	2	0			
Stationery and General Printing	6	2	9			
Assistant Secretary's Salary... ..	100	0	0			
Chartered Accountants' Fee... ..	10	10	0			
				134	13	0
„ Rates, Taxes, &c.—						
Rates and Taxes... ..	24	0	0			
Gas	14	8	0			
Water	3	13	0			
				42	1	0
„ House Account—						
Caretaker's Wages	57	15	0			
Coals	3	3	0			
Sundries	3	4	7½			
Garden	9	12	0			
				73	14	7½
„ Insurance				1	14	6
„ Advertisements				7	0	0
„ Depreciation—						
On Furniture	13	14	5			
On Additions and Repairs to Building	26	3	10			
				39	18	3
„ Expenses, Reading Room				7	14	5
„ Papers and Discussions—						
Printing and Lithography	256	8	1			
Reporting	15	10	0			
Postages	31	9	5			
Lantern	2	4	7			
				305	12	1
„ Recreation Section—						
Expenses (Dinner)	121	5	1			
„ (Conversazione)	110	6	10½			
				231	11	11½
„ Interest—						
Denny Gold Medal				10	0	0
„ Transaction Section—						
Expenses of Binding Volumes				6	10	0
„ Bristol Channel Centre				25	12	10
„ Southampton Centre				28	8	0
„ Balance				67	2	5
				£981	13	1

ACCOUNT.

31st January, 1899.

Cr.

	£	s.	d.	£	s.	d.
By Entrance Fees—						
Members	57	0	0			
Associate Members	7	0	0			
Associates	4	15	0			
Graduates	1	10	0			
Companions	13	0	0			
				83	5	0
„ Subscriptions—						
Members	717	6	9			
Associate Members	35	15	0			
Associates	20	13	1			
Graduates	8	15	0			
Companions	37	2	0			
				819	11	10
Less Subscriptions in advance—						
	£	s.	d.			
Members	154	14	1			
Associate Members	6	2	6			
Associates	3	10	8			
Graduates	2	0	10			
Companions	12	3	3			
				178	11	4
				641	0	6
„ General Revenue—						
Sale of Bye-laws	0	5	0			
Receipts, Billiard Table	3	19	9			
				4	4	9
„ Transaction Section—						
Sale of Bound Volumes				15	5	5
„ Donations to Library				4	2	0
„ Recreation Section—						
Sale of Dinner Tickets	80	9	0			
„ Conversazione Tickets... ..	108	5	0			
Donation Dinner	40	16	0			
				229	10	0
„ Drawing Class—						
Difference between Estimated and Actual						
Expenditure, 1897-8	1	13	5			
Donations	2	12	0			
				4	5	5

£981 13 1

MEETINGS HELD DUR

DATE.	NO. OF PAPER.	SUBJECTS.
1898.		
February 14 ..	73	The Thermodynamics of the Steam Engine—Part I.
Do. 28 ..	73	Do. do. do. Part II.
March 14 ..	74	Paddle Wheels
Do. 28 ..	76	Boiler Scale and Incrustation
April 4 ..	75	Marine Boilers and Steam Pipes
Do. 15 ..	—	Annual Meeting.. .. .
Do. 25 ..	77	Water Tube Boilers
May 2 ..	77	Do, do. Discussion
Do. 9 ..	77	Do. do. Discussion—continued.. .. .
October 10 ..	78	The Marine Engineer
Do. 12 ..	—	Eighth Annual Dinner.. .. .
Do. 24 ..	78	The Marine Engineer—Discussion
November 14 ..	79	Feed Water Heaters
Do. 28 ..	79	Do. do. Discussion
December 12 ..	80	Electric Lighting Works
Do. 12 ..	81	Electric Traction
1899.		
January 9 ..	80	Electric Lighting Works—Discussion
Do. 20 ..	—	Tenth Annual Conversazione
Do. 23 ..	—	President's Address
*Do. 25 ..	82	Auxiliary Machinery (Cargo)

Read at Cardiff

ING SESSION, 1898-9.

AUTHOR.	CHAIRMAN.	WHERE HELD.
Mr. R. D. KEAY.. .. (Member) Do. do. ..	Mr. T. F. Aukland (Companion) Do. do. ..	58, Romford Road, E. Do. do.
Mr. A. E. MILLS.. .. (Member)	Mr. J. Fortescue Flannery, M.P. (Past-President)	Do. do.
Mr. J. G. HAWTHORN .. (Member)	Mr. Jas. Adamson (Hon. Sec.)	Do. do.
Mr. J. F. WALLIKER .. (Member)	Mr. T. F. Aukland (Companion) Mr. Sidney C. Sage (Chairman of Council)	Do. do. Do. do.
MESSRS. G. HALLIDAY .. (Wh. Sch.), and E. A. SEABURY (Members) .. Do. do. ..	Mr. Alderman G. W. Kidd .. (Vice-President) Do. do. ..	Do. do. Do. do.
Do. do. ..	Mr. T. F. Aukland (Companion)	Do. do.
Mr. JAS. ADAMSON .. (Hon. Sec.)	Mr. Sidney C. Sage (Chairman of Council)	Do. do.
RECREATION COMMITTEE ..	John Inglis, Esq., LL.D. .. (President)	The Holborn Restaurant.
Mr. JAS. ADAMSON .. (Hon. Sec.)	Mr. Alderman G. W. Kidd .. (Vice-President)	58, Romford Road, E.
Mr. G. HALLIDAY (Wh. Sch.) (Member) Do. do. ..	Mr. Alderman G. W. Kidd .. (Vice-President) Do. do. ..	Do. do. Do. do.
Mr. N. APPELBEE .. (Assoc. Member)	Mr. J. E. Elmslie (Member)	Do. do.
Prof. A. C. ELLIOTT, D.Sc. (President B.C.C.) Do. do. ..	Do. do. .. Mr. A. Boyle (Member)	Do. do.
RECREATION COMMITTEE..	John Inglis, Esq., LL.D. .. (President)	Town Hall, Stratford, E.
JOHN INGLIS, Esq., LL.D. (President)	Sir W. H. White, K.C.B. .. (Past-President)	58, Romford Road, E.
Mr. E. NICHOLL (Member)	Prof. A. C. Elliott, D.Sc. ..	Cardiff.

on this date.

THE HONORARY SECRETARY: I regret that the reports of the Bristol Channel and Southampton Centres have not been received. They will be published in the Transactions with this report if such is agreed to.

THE HON. TREASURER (Mr. F. W. Shorey): Most of you have the balance sheet and revenue account before you and I do not think there is very much explanation to add. I should like to point out that in comparing the present balance sheet with the past year's, it shows very favourably. In the twelve months ended January, 1898, we expended an amount of £974 with a membership of 983. This year we have been more economical, for with a larger membership we have spent less. This year we have a membership of 1,035, and we have expended only £914, showing a saving of about £60. On the credit side of the revenue account you will see what has been received in subscriptions, and it may be asked why, having a membership of 1035, we have not received more. Some members find fault with us for not advising them when subscriptions are due, but I think it should scarcely be necessary to advise members. We made the date for the payment of subscriptions the first of January, which is a fixed date and one easy to remember. On the other hand some members grumble because they get too many notices, but you will of course understand that if notices go out from here, signed by me as honorary treasurer, it is not a notice from me but from the Council; but after all we must have the needful to keep us going. You will see from the revenue account that on the recreation section we have expended £231 11s. 11d., while we have only received £229 10s., showing a loss of about £2. This is to be regretted as we all agreed that recreation should not show a loss, as everything of that kind should pay for itself. Last year we made a profit of about £14 on the recreation section, and I think that should always be the case. I have nothing further to say except that you may rest assured that the Council will always do its best to keep the expenses down and study the interests of the Institute. If any member wants to ask any question I will do my best to answer.

No member rising to make any inquiry,

Mr. A. BOYLE (Member) moved that the annual reports and financial statement be received and adopted, and printed and circulated in due course.

Mr. J. LANG (Member) seconded the motion, which was carried unanimously.

Mr. A. BOYLE: The motion I have to propose now is that a cordial and hearty vote of thanks be passed to our retiring president, Dr. Inglis. I have great pleasure in proposing it, and in doing so I wish to express our high appreciation of the great interest taken by Dr. Inglis in the welfare of the Institute during his presidential year. It is very gratifying to us as marine engineers to know that our Institute is flourishing, and, as we hope and expect, is doing good work. It is also very gratifying to reflect that we have had so much encouragement in our efforts, and sympathy in our objects, from the leading members of the engineering and shipbuilding professions, and from other gentlemen connected with the shipping trade. Certainly, as marine engineers, we ought to be very proud indeed that our presidents have been gentlemen who stand in the front rank of their profession, whether as scientists like Lord Kelvin, naval architects like Sir William White, or consulting and superintending engineers with great responsibilities attached to their positions. Then we have had those potentates in the shipping and commercial world like Sir Thomas Sutherland and Sir Edwyn Dawes, and engineers and shipbuilders combined, like the late Dr. Peter Denny, and our present retiring president, Dr. Inglis. In Dr. Inglis we have had a president who has taken a great interest in our work during his year of office, and one whom we all have the greatest respect for—a gentleman who can appreciate the trials and difficulties and responsibilities of the marine engineer, and they are neither few nor light, from his apprenticeship onwards—one who served an apprenticeship himself, and has been in close touch

with marine engineers ever since. His presidential address, which was listened to with great interest, was, if I may say so, marked by the dominant notes of great good sense and valuable counsel, and while avoiding indiscriminate praise, and that flattering language frequently heard at a gathering of professional men, while deploring the mistaken policy, unfortunately sometimes adopted by the British workman, yet freely acknowledging the superior capabilities of workmen of all grades, and his excellence under the most trying circumstances and when he really set himself to do his work. The address, I venture to say, will be read and appreciated and approved by our members, both by those who have the opportunity to do so at their own fireside, and by those whose lot it is to carry the red or the blue ensign, with all which it implies, to all parts of the world. I am sure that no words of mine are needed to commend this vote of thanks to you. I am confident that it will be carried unanimously, and, I expect, with acclamation.

Mr. R. ADAM (Member): I have very much pleasure in seconding the motion, which I am quite sure on being put to the meeting will be carried with enthusiasm.

The vote was passed with great applause.

(Received from the President subsequent to the meeting in reply to the letter conveying the expression of the vote of thanks.)

“POINTHOUSE SHIP YARD,

“GLASGOW,

“30th March, 1899.

“DEAR MR. ADAMSON

“I duly received your favour of 27th inst. intimating the Institute's vote of thanks to me as retiring president.

“It has been a source of great regret to me that I have been prevented attending the ordinary meetings

during the Session now closed, but, as you know, I have not been in my usual state of health of late, and, since August last, have not been in London except at the time of the annual dinner and again in January.

"I have to thank Mr. Boyle for his remarks at the annual business meeting, and to express my gratitude also to yourself, to Mr. Taylor and all the members of Council for making my duties so light and agreeable.

"With warmest wishes for the continued prosperity of the Institute of Marine Engineers,

"I am,

"Yours faithfully,

"JOHN INGLIS."

Mr. A. BROWN (Companion): I think it a great honor to have been asked to propose such a resolution as that which has been given to me. Men who are put in the positions of office bearers and members of council of an institution like this have something before them, as it is no sinecure to be appointed to office of the kind. There is a host of things to be done that take up a considerable amount of their time, often when they might be sitting at their own firesides with their families, and when they get the cold shoulder, I am afraid, for leaving them. I know something of those who have been in office here, and I know the time and trouble they have devoted to the affairs of the Institute. They devote a considerable amount of time to their duties, and I know, from what I have seen, that the office bearers and members of council or at any rate the majority of them, have done their duty. In all institutions you will find that some of those elected to office shirk their work, and therefore there is more for those who are willing to work. The office bearers and council of this Institute deserve great credit and praise for the way they carry on their work here, and I have great pleasure in proposing that we accord them a hearty vote of thanks.

Mr. W. LAWRIE (Member) : I have great pleasure in seconding the motion. That the Institute is going on flourishing there is not the least doubt, and that, I think we shall all agree is mainly due to the office bearers and council who conduct our business. Were it not so we should not have the same measure of success that has been reported here to-night, I am sure they do it from a sense of duty, but at the same time I have no doubt that they will recognise our vote of thanks as being as hearty as possible, and I think we should give the council and office bearers the heartiest vote of the whole evening. Their work does not begin and end in a day. It is continuous. It goes on from the beginning of the year to the end of the year, and I think the members of the Institute do not recognise it as they ought to do. If they did we should have a better attendance here to-night, and I hope that in the time to come their efforts will be better rewarded than they have been in the past. With these few remarks I have great pleasure in seconding this vote of thanks to the office bearers and council for their services, and for the enlightened policy which they have carried out and which has brought the institution to the great success it has now attained.

The resolution was put to the meeting and carried with hearty cheers.

Mr. JAMES ADAMSON (Honorary Secretary) : I beg on behalf of the office bearers and Council to thank you very heartily for your vote of thanks. The touching reference made by the proposer of the resolution to the late chairman of council came home to us very much, when we consider the earnest and practical way in which he worked for the Institute up to within a few hours of the time that he was taken from our midst, Mr. Brown was very closely associated with the late Mr. Thomson in business and knew him better than most of us present, but those who did know him cannot but revere his memory. Mr. Lawrie has referred to the attendance at our meeting to-night, and

has on previous occasions referred to the attendances during the session when papers have been read and discussed. I should like to supplement the remarks made and urge that every one should do his utmost to attend so that this hall may be as well filled at our ordinary fortnightly meetings as on the occasion when our President delivered his address. There is a reference to this subject in the annual report, and I hope we shall again have the large meetings that we used to have, as there can be no doubt that such tend to the enjoyment of an evening, while an author reads a paper with much more interest and pleasure if he finds that his work is appreciated, and that there is a large attendance of members to discuss the paper. I rather think that the Bristol Channel Centre could give us a good many points in this matter of attendance. If we could always have good attendance we could also be sure that a paper would be very much better threshed out, and we should all get more benefit. We fully appreciate this vote of thanks, but as a larger attendance at our ordinary meetings would in itself be a *bona fide* vote of thanks to the council for the work that is being done, and for the papers that are prepared from time to time, may I hope that this reference to the matter will encourage every member to do his utmost so that this hall may be filled every time we have a paper read or discussed. We should be loyal to our institution, and with reference to the mention that has been made of staying at home, some of us consider that our duty lies here rather than at home on certain evenings; and I hope this will lead to explanations at home, so that the matter may be seen in a right light, and when a member proposes to attend a meeting of the Institute of Marine Engineers, instead of black looks he will be met with encouragement to go. You will notice from the report that we have inaugurated a new departure in the Institute in connection with experimental work. We have a coal testing apparatus in which the late Mr. Thomson took such a great interest; then we have this apparatus presented by Mr. Joseph Hallett, and we also have another apparatus to be presented to

the Institute by the Editor of "The Engineer." I think we might go a little further in this direction, and I have no doubt the results will be very satisfactory to the Institute and especially useful to the younger members. In the Educational department Mr. Hawthorn has been giving a series of lectures intended specially for the junior members, and the attendance has been very fair indeed. We thought it better to alter our previous mode of providing for the younger members by having lectures instead of classes, and Mr. Hawthorn very kindly came forward and undertook to give the lectures. We made this arrangement in consequence of the opening of the new Technical Institute, because it was thought that they were better qualified to carry on the classes than we were, while we were, perhaps, better qualified to give the lectures. It is very gratifying to notice that the membership of the Institute has increased in numbers during the past year, and that the increase has exceeded that of the previous year in the ratio of 55 to 78. With regard to the draft rules sent to us by the Board of Trade in relation to the training of junior engineers, it is proposed that we should discuss the matter on Monday next. We already have a discussion fixed for that evening on the paper contributed by Mr. Nicholl, on cargo machinery on board ship, but it was thought desirable that we should bring forward these new Board of Trade rules as soon as possible, and they will also be considered on Monday. It is gratifying to notice that the Exchange of Transactions is being more followed up year by year, and the letters we have received in connection with the volumes sent out to Brisbane have been especially gratifying as showing that our Transactions are welcomed and read at the Antipodes as they are at home. With regard to the engineers of the navy, I do not know if members have yet seen the book that has been published covering most of the correspondence that has taken place. The press has been discussing the subject, both in leading articles and letters, and it seems to me the position is being strengthened to bring about those changes that

are most desirable to be made in connection with the status of the engineers in the navy. There is one other matter I should like to refer to. At our meeting last year a question was raised as to the legacy given to the Institute by the trustees of the late Mr. Stephens. We considered the matter in council, and it was thought well to suggest that we might have a silver medal, the value of which might accrue from the $2\frac{1}{2}$ per cent. interest on this £100 left to the Institute. The matter has not yet been quite settled, but that is the feeling of the council--that we should have a silver medal, to be awarded for some special work, and keep the name of the donor in perpetuity. Then with regard to papers to be read, I should like to take this opportunity of asking members to keep in view that we have a session before us, and to prepare in good time any papers that they may contemplate contributing for the forthcoming session. We have just received one other paper which I will hand over to the convener of the Papers Committee so that arrangements may be made for reading it before the holidays. There are several papers promised, and we are still open to receive further promises in order that we may prepare our programme for the ensuing session. On behalf of the office bearers and council I thank you very heartily for this vote of thanks, and I hope the few words that have passed in reference to the attendance at our meetings may bear fruit.

Mr. J. T. SMITH (Member of Council) proposed a hearty vote of thanks to the auditors (Mr. T. F. Auckland and Mr. J. B. Johnston) for their services during the past year.

Mr. W. McLAREN seconded the motion which was carried unanimously.

Mr. F. W. SHOREY (Hon. Treasurer): I have very much pleasure in proposing a vote of thanks to our honorary solicitor, Mr. J. Neely. I am very pleased to say that we have not had much to do with him during the past year, and I think the less we have to

do with the legal gentleman the better. It is a good sign, and shows that we carry on our business in an amicable way. Although he has not done much work for us during the past year, yet I think a vote of thanks is due to him because he is always ready to do anything for us when called upon.

The CHAIRMAN seconded the motion, which was at once agreed to.

The SCRUTINEERS (Messrs. Mather and Kirkland) reported that the voting by the members had resulted in the election of the following office bearers and members of council for the ensuing year:—

President: SIR JAMES LYLE MACKAY, K.C.I.E.

Honorary Treasurer: Mr. F. W. SHOREY.

Honorary Secretary: Mr. JAS. ADAMSON.

Members of Council:

† Mr. J. G. HAWTHORN.	* Mr. A. BOYLE.
† „ C. NOBLE.	* „ W. I. TAYLOR.
† „ J. R. RUTHVEN.	* „ A. G. CRICHTON.
† „ J. T. SMITH.	* „ A. CAMPBELL.
† „ S. C. SAGE.	* „ A. BLAIR.
* „ J. BLELLOCH.	* „ J. W. RICHARDSON.
* Mr. W. C. ROBERTS.	

Honorary Minute Secretary: Mr. C. G. NEWBY.

BRISTOL CHANNEL CENTRE.

President: SIR JOHN GUNN.

Vice-Presidents:

Mr. M. W. AISBITT. Mr. T. W. WAILLES. Mr. J. F. WALLIKER

Representative to Council: Mr. T. A. REED.

Honorary Treasurer: Mr. A. E. SMITHSON.

Honorary Secretary: Mr. GEO. SLOGGETT.

Members of Committee:

Mr. J. FLEMING.	Mr. J. CHELLEW.
„ W. SCOTT.	„ G. RUTHERFORD.
„ D. GIBSON.	„ J. BODDY.
„ R. WILLIAMSON.	„ W. SIMPSON.

Mr. J. W. RICHARDSON (Member of Council): I have much pleasure in proposing a vote of thanks to the two scrutineers. When those remarks were being

† Non-Retiring Members.

* Members declared Elected.

passed just now about the attendances of the members of council, I felt very uneasy, because I have not been a very deserving member of council for some time past. I can only say that I will try to do better in future. Mr. Adamson referred to the good attendances at the meetings of the Bristol Channel Centre, but it must not be forgotten that it is comparatively easy to get from any part of Cardiff to University College, where the meetings are held, while it is by no means so easy to get here from the different parts of London, and, of course, members have to get home again after the meetings.

The motion was seconded by Mr. ANDERSON, and carried.

Mr. MATHER briefly acknowledged the vote, and said that, having regard to the number of members belonging to the Institute, he thought that a larger proportion of voting papers might have been returned.

Mr. C. G. WILSON (Member) proposed the re-appointment of the auditors (Messrs. Aukland and Johnston), and the motion having been seconded by Mr. J. R. RUTHVEN, was carried.

Mr. R. LESLIE (Member): I have very much pleasure in proposing a hearty vote of thanks to the Chairman. Mr. Sage certainly deserves a hearty vote of thanks. Many of us cannot always spare the time, but some of us might stretch a point and attend when we can. I quite agree with what Mr. Adamson has said, that the meetings, when papers are read, might be more fully attended. If we could manage to send out a post card to remind members of the date of meeting, I think it would have a good effect.

Mr. HAWTHORN (Member of Council): In rising to second the motion, I can endorse what Mr. Leslie has said in regard to the services of our Chairman, as I can speak of his work from personal knowledge as a

member of council; and, certainly, we are only doing right in giving him a hearty vote of thanks for his attendance here to-night.

The CHAIRMAN: Before replying to the very flattering remarks that have just been made concerning myself, I wish to call your attention to one or two matters that have already been mentioned by our honorary secretary. The first is as to the interest on the Stephens' legacy of £100, and the proposition as to the institution of a silver medal for such papers as may deserve it—whether it is your wish that the council should deal with that matter. The question was deferred by the council until we could get your views as to whether the matter should be dealt with in that way. The other point is as to the delegate to the French Exhibition, because it is a matter of importance to this institution, and not beneath the dignity of our annual meeting to consider. In the absence of any other suggestion or objection, I take it that you confirm the powers of the council to deal with these matters in the ordinary way, as representing the members. The discussion on the draft rules proposed by the Board of Trade relating to engineers' examinations, you will note has been fixed for next Monday evening. This Institute, I consider, has been distinguished by the way in which the Board of Trade have acceded to our request for a five years' training. There is nothing in the new rules about a third grade certificate, but that, I think, would require an Act of Parliament. I hope that on Monday evening you will give the office bearers and council your support in considering the whole matter with that attention it deserves. I thank you for your attendance.

