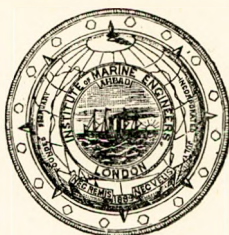


INSTITUTE OF MARINE ENGINEERS
INCORPORATED.

SESSION



1904-1905.

President: THE HON. C. A. PARSONS, M.A., C.B.
Local President (B. C. Centre): LORD TREDEGAR.

SIXTEENTH ANNUAL VOLUME

COMPRISING THE

PAPERS READ

AND DISCUSSIONS HELD DURING THE SESSION,

ANNUAL REPORTS, FINANCIAL STATEMENT,

Additions to Library and Property,

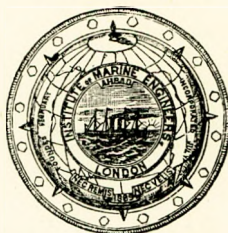
LIST OF MEMBERS.

—
EDITED BY

JAS. ADAMSON, *Honorary Secretary.*

INSTITUTE OF MARINE ENGINEERS INCORPORATED.

SESSION



1904-1905.

President: THE HON. C. A. PARSONS, M.A., C.B.

Local President (B. C. Centre): LORD TREDEGAR.

Vol. XVI.

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2. Lecture on Lightships and Fog Signals, by Mr. J. SPARLING.
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4. Paper No. CXVI. The Application of Electric Power to Cargo Steamers, by Mr. D. K. ROBERTS (Member).
5. Paper No. CXVII. The Protection of Metal Surfaces, by Mr. H. BRANDON (Member).
6. Paper No. CXVIII. Technical Education, by Mr. JAS. ADAMSON (Hon. Secretary).
7. Paper No. CXIX. Fuel Economy by Insulation, by Mr. R. B. LYDDON (Companion).
8. Reports on the Annual Dinners.
9. Presidential Address, by the Hon. C. A. Parsons, M.A., C.B.
10. Lecture, "Trip to New Zealand," by Mr. JOS. FEIL.
11. List of Members.

VOLUME XVI.

List of Papers Read and Lectures Delivered.

DATE.	TITLE.	NO.	AUTHOR.
Feb. 8th, 1904 ..	Lightships and Fog Signals..	LECTURE	J. SPARLING.
March 14th, 1904..	Coal from Seam to Shipment	CXV.	J. T. SHELTON (Member).
March 28th, 1904..	The Application of Electric Power to Cargo Steamers..	CXVI.	D. K. ROBERTS (Member).
April 18th, 1904 ..	The Protection of Metal Sur- faces	CXVII.	H. BRANDON (Member).
Oct. 24th, 1904 ..	Technical Education ..	CXVIII.	JAS. ADAMSON (Hon. Secretary).
Oct. 31st, 1904 ..	*Lighthouses	LECTURE	J. SPARLING
Nov. 7th, 1904 ..	A Trip to New Zealand	LECTURE	JOS. FELL.
Dec. 12th, 1904 ..	Fuel Economy by Insulation	CXIX.	R. B. LYDDON (Companion).
Jan. 16th, 1905 ..	President's Address		HON. C. A. PARSONS, M.A., C.B.

*Not published.

INSTITUTE OF MARINE ENGINEERS
INCORPORATED.

SESSION



1904-1905.

PRESIDENT: THE HON. C. A. PARSONS, M.A., C.B.
LOCAL PRESIDENT (B. C. CENTRE): LORD TREDEGAR.

REPORT OF THE PROCEEDINGS
AT THE
ANNUAL MEETING

HELD AT
58, ROMFORD ROAD, STRATFORD,
ON FRIDAY, APRIL 14TH, 1905.

CHAIRMAN :
MR. W. C. ROBERTS (*Chairman of Council*).

PROGRAMME OF THE
Sixteenth Annual Meeting

On FRIDAY, APRIL 14th, 1905,

HELD AT

58, ROMFORD ROAD, STRATFORD.

Chairman: MR. W. C. ROBERTS (Chairman of Council).

- 7.15 The CHAIRMAN.
- 7.20 Appointment of Scrutineers.
Proposer, MR. ROB. MACKENZIE
(Member).
Seconder, MR. SILLEY (Member).
- 7.25 The Annual Reports.
The HON. SECRETARY.
The HON. LOCAL SECRETARY
(Bristol Channel Centre).
- 7.40 The Financial Statement.
The HON. TREASURER.
The HON. LOCAL TREASURER
(Bristol Channel Centre).
- 7.50 Alteration to By-Laws.
Proposer, MR. F. W. SHOREY
(Member).
Seconder, MR. A. H. MATHER
(Hon. Finance Secretary).
- 8.0 Establishment of Centres.
Proposer, MR. JOHN McLAREN
(Member of Council).
Seconder, MR. D. HULME
(Member of Council).
- 8.15 Adoption of Reports.
Proposer, MR. J. R. RUTHVEN
(Member of Council).
Seconder, MR. E. W. ROSS
(Member).
- 8.30 Adjournment for Coffee.
- 8.40 Vote of Thanks to the Retiring
President.
Proposer, MR. W. C. ROBERTS
(Chairman of Council).
Seconder, MR. W. LAWRIE
(Vice-Chairman of Council).
- 8.55 Vote of thanks to Retiring Office
Bearers and Council.
Proposer, MR. J. G. HAWTHORN
(Member).
Seconder, MR. D. S. LEE (Member).
Response, MR. JAS. ADAMSON
(Hon. Secretary).
- 9.10 General Remarks and Suggestions.
MR. G. W. NEWALL (Member).
MR. JOHN CLARK (Companion).
- 9.15 Vote of Thanks to the Hon.
Solicitor.
Proposer, MR. S. C. SAGE
(Member of Council).
Seconder, MR. B. H. BUDDING
(Member).
- 9.20 Reports of Scrutineers.
Messrs. W. McLAREN (Vice-President)
and A. COOKE (Member).
- 9.25 Vote of Thanks to Scrutineers.
Proposer, MR. J. FLEMING (Member).
Seconder, MR. C. PERKINS (Member).
- 9.30 Appointment of Auditors.
Proposer, MR. G. SHEARER (Member).
Seconder, MR. P. SMITH (Member).
- 9.45 Vote of Thanks to Chairman.
Proposer, MR. FARENDEN
(Associate Member).
Seconder, MR. LEE (Member).

MINUTES OF PROCEEDINGS

AT THE

Annual General Meeting

HELD IN

THE INSTITUTE PREMISES,

ON FRIDAY, APRIL 14TH, 1905.

CHAIRMAN: MR. W. C. ROBERTS (Chairman of Council).

The Sixteenth Annual General Meeting of the Institute of Marine Engineers was held at 58, Romford Road, Stratford, E., on Friday, April 14th, 1905.

The CHAIRMAN: I am sorry that our President is unable to be with us this evening, as the following telegram explains:—"Regret shall be unable to attend Annual Meeting, as I am laid up with dislocated shoulder." We are all very sorry to hear he has met with this accident.

Mr. R. MACKENZIE proposed, and Mr. J. H. Silley seconded, the appointment of Mr. W. McLaren and Mr. Alfred Cooke as Scrutineers, who were approved.

The HONORARY SECRETARY said they all regretted that the President was unable to attend, especially under such unfortunate circumstances. They would all feel sympathy for him in regard to his accident, and hoped he would soon be all right again. He was also sorry that Mr. Walliker (Hon. Secretary, B. C. Centre) was unable to attend. Mr. Adamson then read the Annual Reports, as follows:—

ANNUAL REPORT FOR YEAR 1904-5.

During the financial year, ending January 31st, 1905, our membership has been increased by the addition of 75 new members, inclusive of all grades. It has been

found necessary, however, by the Council, to closely investigate the Roll Book, and after endeavouring to trace Members who have lost touch with the Institute owing to change of address, and failing to obtain a response, to remove their names from the Roll meantime, reserving the option of replacing them should a satisfactory explanation be obtained afterwards. The hand of death has removed from us 15 Members, whose names are recorded with renewed regret and sympathy with surviving relatives.

H. CARLISLE (Member), who died in March, 1904, was in the well-known Sheffield firm of Messrs. Lockwood & Carlisle.

GEO. DUNN (Member), who died in December, 1904.

C. DONBAVAND (Member), who died in April, 1904.

C. A. GIBBONS (Member), who died in October, 1904.

THOS. JAMES (Companion), who died in September, 1903.

M. KEENAN (Companion), who died in March, 1904, was the Proprietor of the well-known Non-conducting Covering, which bears his name.

W. KEY (Member), who died in November, 1904, was associated with the Bristol Channel Centre.

J. PARKINS (Member), who died in December, 1904.

JOHN PATTISON (Member), who died in December, 1904, within a short time of his election, was foreman in the service of the India Rubber and Telegraph Works, Silvertown, in the Engine Department. He was highly respected for his attention to duty.

CAPTAIN H. PLATER (Companion), who died in July, 1904, for many years connected with the Institute, was the genial Marine Superintendent to the Aberdeen Star Line of Steamers.

WM. REID (Companion), who died in July, 1904, was well known in connection with the firm of W. Reid & Co., Fenchurch Street.

W. J. STEPHENS (Associate), who died in April, 1904.

CAPTAIN C. THOMSON (Companion), who died in December, 1903.

J. WASHER (Member), who died in June, 1904.

P. C. WILSON (Member), who died on his way home from India on sick leave in July, 1904, was a member of many years standing, who took a very warm interest in the Institute. He was in the service of the British India Co. for over 20 years.

The Roll Book, after being overhauled, contains an active membership of 928, made up as follows:—

GRADES.	Roll on Jan. 31st, 1904.	Lapsed.	Died.	Resigna- tions.	Elected.	Roll on Jan. 31st, 1906.
Past Presidents (Non-Members) ..	5	—	—	—	—	5
Hon. Vice-Presidents ..	1	—	—	—	—	1
Hon. Members	1	—	—	—	—	1
Members	761	58	9	16	61	743
Companions	95	10	5	3	3	80
Associate Members	44	13	—	—	6	37
Associates	40	7	1	—	2	34
Graduates	24	6	—	—	3	21
Probationary Members	8	—	—	—	—	6
TOTALS	979	94	15	19	75	928

Five papers have been read and six discussed in the course of the year, and comprise the following subjects:—“Marine Petrol Motors and Motor Launches,” “Coal from Seam to Shipment,” “The Application of Electric Power to Cargo Steamers,” “Technical Education,” “Fuel Economy by Insulation,” and “The Protection of Metal Surfaces.”

*Published in Volume XV., having been read in January, 1904.

The PRESIDENT, the Hon. C. A. Parsons, M.A., C.B., delivered an address in the premises of the Institute, on Monday, January 16th, when he presented the Denny Gold Medal to Mr. R. Balfour (Member), for his paper on "Refrigerating Machinery," read the previous Session, in March, 1903.

Ninety bound volumes of Transactions have been disposed of, including copies sent for copyright purposes, and to public libraries at home and abroad.

Three Lectures have been delivered, illustrated by means of lantern slides, on Lightships and Lighthouses, by Mr. J. Sparling, and a "Trip to New Zealand," by Mr. Jos. Feil. To these gentlemen our hearty thanks are accorded for their kindness and courtesy. These lectures were largely attended and very much appreciated by the audience, which included ladies.

Three visits to works were paid during the summer recess—the India Rubber and Telegraph Works, Silvertown; the East Ham Electric Power Station; and the Charing Cross and Strand Electric Power Station. Our warmest thanks are accorded to the Proprietors and Corporation for the great kindness extended towards us in connection with these visits.

Fuel testings has been carried on in the premises on Monday evenings not otherwise occupied. A large number of samples of coal, fuel of various kinds, and coke, have been submitted by Members and tested in their presence. The devotion of Mr. W. McLaren to this department of work deserves our special thanks. The time and labour bestowed upon the workshop and tools, in the basement of the premises, by Mr. G. Shearer, also call for the best appreciation of the Members, and especially of the juniors.

The Reading Room and Library—available for the use of Members from 10 a.m. to 10 p.m.—have been kept, maintained, and added to by the courtesy of the

Proprietors and Editors of Books, Papers, and Magazines, also by the kindness of several Members who have contributed by their liberality, and to all of whom our thanks are accorded, as per the list appended.

The Billiard Room is also open for the use of Members during the hours named above.

The Annual Dinner and the *Conversazione* were held in the Liverpool Street Station Hotel, on October 19th and January 20th respectively. Both of these events proved eminently successful, the attendance of members and friends being large on both occasions.

The Lawn Tennis Club had a good season, with a membership of 25 ladies and gentlemen. A Picnic Party of the Club visited Hampton Court, on Saturday, July 2nd. The close of the season was celebrated by a Social Evening and Dance, in our own premises, when the limits of the accommodation were fully tested. This Club is specially commended to the attention of the juniors.

The premises will require to undergo some repairs and cleaning, it is proposed to undertake this necessary work about the month of May.

The subject of finance has been given careful attention to by the Council with a view to reduce the expenses, and it is satisfactory to find that the balance is preserved on the credit side. The papers read have not required so many illustrations as those of some previous years, hence considerable reduction has taken place in this the important department of the Institute's work. In order to reduce the cost of production it was decided to increase the breadth of the printing on each page, thus decreasing the margin for binding up. With the same object, it was decided to hold back the papers and discussions, and bind them up in continuous pages under one cover for issue in each six months. Proof copies of the papers for discussion purposes will, however, be issued as usual when the papers are read. It was suggested that there

are many papers which Members may desire to possess for reference purposes, these may be available for purchase after they have served their immediate purpose in the Reading Room. There are also papers remaining on stock from former years' transactions, and for which enquiries have been made from time to time for extra copies or to complete a volume, these papers can be obtained on application at approximately 6d. each.

It is with very great regret both on the part of the Council and himself that the Hon. Treasurer, Mr. Jas. Blake, has been urged by his medical adviser to give up all work and take complete rest for a time, at least. The Institute is therefore deprived of the valuable co-operation and help of an office bearer, who has been most painstaking and attentive to the details of his department, and whose valued assistance will be much missed. It is the earnest hope of the Council that Mr. Blake may speedily be restored to complete health and strength; his return to the Council would be most welcome at any time.

It is also with great regret we have received the resignation of Mr. C. Noble, whose services we have been deprived of for some time on account of severe illness. We express our sympathy with Mr. Noble in the trouble he has experienced, and wish him speedy restoration to health.

The subject of centres has been given a good deal of thought and consideration by the Council, and as a result of much deliberation, a set of Rules and Regulations for the conduct of centres was drawn up, and is submitted for modification or approval. Enquiries having been made by Members on several occasions from various parts, it was deemed desirable to have established regulations for the information and guidance of all concerned.

A few slight alterations are proposed in the By-Laws as set forth in the circular issued, summoning the Annual Meeting.

We are entering upon another year's work with good prospects, both in respect to the finances and additions to the membership, while the opening papers and lectures are of great interest. Several visits to works have also been arranged for the summer recess on Saturday afternoons in May, June, July, and September. The attendance of Members at the Ordinary Meetings and the Fuel Tests during the latter portion of the Session especially, has been good, and contrasts favourably with the previous year. It is earnestly hoped that every Member will make it his endeavour to support the efforts made by the Council to carry on the work and advance the highest interest of the Institute. Any suggestions made by Members for the furtherance of the object in view, as set forth in the Articles of Association, will be welcomed by the Council.

It is with gratification we note that during his year of office, a national and deserved honour was conferred upon the President by His Majesty the King. May we not only congratulate the President on this, but venture to hope that greater honour is to follow.

On behalf of the Council.

JAS. ADAMSON,

Hon. Secretary.



MEETINGS HELD DUR

DATE.	NO. OF PAPER.	SUBJECT.
1901.		
February 8 ..	Lecture	Illustrated Lecture, "Lightships"
" 15 ..	114	Marine Petrol Motors and Motor Launches (Adjourned Discussion)
" 22 ..	..	Fuel Testing
" 29 ..	..	Fuel Testing
March 11 ..	..	Annual Meeting
" 14 ..	115	Coal from Seam to Shipment
" 21 ..	..	Fuel Testing
" 28 ..	116	The Application of Electric Power on Cargo Steamers..
April 11 ..	114	Adjourned Discussion on Petrol Motors... .. .
" 11 ..	117	Protection of Metal Surfaces
" 18 ..	116	Adjourned Discussion on Electric Power on Cargo Steamers
May 28 ..	Visit	The India Rubber and Telegraph Works
June 4 ..	..	Electric Power Station
" 25 ..	..	Charing Cross and Strand Electric Power Station ..
July 2 ..	..	Tennis Club Picnic.. .. .
October 1 ..	..	Sixth Annual Tennis Club Social
" 3 ..	..	Fuel Testing
" 10 ..	117	Adjourned Discussion on Protection of Metal Surfaces..
" 17 ..	..	Fuel Testing
" 19 ..	..	14th Annual Dinner
" 24 ..	118	Technical Education
" 31 ..	Lecture	Illustrated Lecture, "Lighthouses"
November 7 ..	Lecture	Illustrated Lecture, "A Trip to New Zealand" ..
" 14 ..	118	Adjourned Discussion on Technical Education ..
" 21 ..	..	Fuel Testing
December 5 ..	..	Fuel Testing
" 12 ..	119	Fuel Economy by Insulation
" 19 ..	..	Fuel Testing
1905.		
January 9 ..	..	Fuel Testing
" 16 ..	..	Presidential Address and Presentation of Medal ..
" 20 ..	..	16th Annual Conversazione
" 23 ..	119	Adjourned Discussion on Fuel Economy by Insulation..
" 30 ..	..	Fuel Testing

ING SESSION 1904-5.

AUTHOR.	CHAIRMAN.	WHERE HELD.
J. Sparling	J. R. Ruthven, Member of Council	58, Romford Road
O. Sumner, Member ..	W. McLaren, Vice-President	Do. do.
W. McLaren, Convener ..	Jas. Adamson, Honorary Secretary	Do. do.
Do. do. —	Jas. Adamson	Do. do.
	S. C. Sage, Member of Council	Do. do.
J. T. Shelton	T. F. Aukland, Companion	Do. do.
W. McLaren, Convener ..	Jas. Adamson	Do. do.
D. K. Roberts	W. Lawrie, Member of Council	Do. do.
O. Sumner	D. Hulme, Member of Council	Do. do.
H. Brandon	D. Hulme	Do. do.
D. K. Roberts	W. Lawrie	Do. do.
By the kindness and courtesy of the Directors	—	Silvertown
By the kindness and courtesy of the Corporation	—	East Ham
By the kindness and courtesy of the Directors	—	Bow, E.
	—	Hampton Court
A. H. Mather, Honorary Secretary, Tennis Club	—	58, Romford Road
W. McLaren, Convener ..	Jas. Adamson	Do. do.
H. Brandon	W. Lawrie	Do. do.
W. McLaren, Convener ..	Jas. Adamson	Do. do.
W. I. Taylor, Convener ..	Hon. C. A. Parsons, C.B., President	Liverpool St. Hotel
Jas. Adamson, Hon. Secretary	T. F. Aukland	58, Romford Road
J. Sparling	W. Lawrie	Do. do.
Joseph Feil, P.S.A. ..	Jas. Adamson	Do. do.
Jas. Adamson	T. F. Aukland	Do. do.
W. McLaren, Convener ..	—	Do. do.
W. McLaren, Convener ..	—	Do. do.
R. B. Lyddon	J. F. Elmslie, Member of Council	Do. do.
W. McLaren, Convener ..	Jas. Adamson	Do. do.
W. McLaren, Convener ..	—	Do. do.
Hon. C. A. Parsons, C.B., President	—	Do. do.
W. I. Taylor, Convener ..	—	Liverpool St. Hotel
R. B. Lyddon	W. Lawrie	58, Romford Road
W. McLaren, Convener ..	Jas. Adamson	Do. do.

INSTITUTE OF MARINE ENGINEERS.
INCORPORATED.

Bristol Channel Centre.

ANNUAL **R**EPORT.

SESSION 1904-1905.

During the Session 1904-5 a certain amount of work has been done by the Bristol Channel Centre, some interesting papers having been read and discussed. A number of new members have been elected connected with this Centre, but there has also been a number of names struck off the rolls, owing to lapse of annual subscriptions.

The following Papers have been read and discussed:—

“The Application of Electric Power on Cargo Steamers,” by Mr. D. K. Roberts (Member).

“Protection of Metal Surfaces,” by Mr. H. Brandon (Member).

“Technical Education,” by Mr. James Adamson (Hon. Secretary).

A most enjoyable day was spent on Saturday, June 18th, 1904, when the Members and their friends made an excursion to Cheddar, via Weston. The company left Cardiff by special boat for Weston, and drove from there in special conveyances to Cheddar, where lunch was served, afterwards visiting the celebrated caves and other places of interest in the district. The company was favoured with beautiful weather.

The 14th Annual Dinner of the Centre was held in the Royal Hotel, Cardiff, on Wednesday, December

14th, 1904, and was a very successful gathering. The report in detail appears elsewhere in the transactions of the Institute. Great regret was expressed that it had not been convenient for any of the Council from London to attend.

A very pleasant function took place on Saturday, June 11th, 1904, when the Committee and Members of the B.C.C. made a very handsome Wedding Present of a Canteen of Cutlery, Spoons, Forks, &c., to the Hon. Secretary of the Centre, Mr. John George Walliker. Mr. J. Boddy, Vice-President of the B.C.C., occupied the chair, and in a few well-chosen words made the presentation.

The Saturday evening Meetings have not been so well attended as last year, but it is hoped that next year we shall be able to organize both the fortnightly Wednesday evening Meetings for the reading and discussing of papers, and also the Saturday evening Socials.

A Deputation, consisting of Mr. M. W. Aisbitt, Mr. T. A. Johnson, and the Hon. Secretary (Mr. J. G. Walliker), attended a Council Meeting of the parent Institute on Friday, March 17th, 1905, and it is hoped that the result of that meeting will be beneficial to all concerned. It is the earnest hope of the Committee and Members of the B.C.C. that in the future a better standing will exist, and that some satisfactory agreement will be arranged.

JOHN GEORGE WALLIKER,

Hon. Sec. B.C.C.



MR. A. H. MATHER (Hon. Financial Secretary) said that before submitting the Financial Statement he would like to express his regret at the unfortunate

circumstances under which they were deprived of the presence and services of Mr. Blake. The present position of the finances of the Institute was very largely due to the work which Mr. Blake had done during the year, and they had a credit balance of £225 8s. 10½d., as compared with debit balances during the last two years. That balance was, perhaps, greater than it ought to be, as the amount should not be allowed to grow too great, but be spent year by year on the legitimate work for the good of the Members, so long as they kept within the limits of the financial stability of the Institute. The principal points of difference lay in abnormal expenses incurred the previous year, when the drainage system had to be overhauled and repaired; at the same time, on account of the depreciation in consols, £110 10s. was written off the value of the amount invested in these securities, and thus showed as an apparent deficit. The Papers, besides, were costly, being largely illustrated; added to these were a loss on the Recreation Section, and a large outlay on the Bristol Channel Centre. The two latter items entered into the present year's account, but not to the same extent. The general expenses, during 1904-5 stood at £154 12s. 9½d., as against £185 4s. 0½d. for the previous year. The house account, including repairs to building, amounted to £100 5s. 11d., as compared with £151 15s. 8½d. for the previous year. The cost of the "Transactions" (papers and discussions) amounted to £241 10s. 9½d., as against £350 12s. 10d. for the previous year. The income of the Institute had during the year under review increased in the following manner:—General Membership Subscriptions, £776 10s. 8d., as compared with £669 12s. 11d. for the year 1903-4; Bristol Channel Centre had been sent £119 9s. 5d., as compared with £112 19s. 3d. for the previous year. Those figures for the year were satisfactory, and he might point out that a good deal of that increase was due to arrears of subscriptions being received, thus a number of Members on the point of lapsing had been kept in touch with the Institute. The Bristol Channel Centre, he was sorry to say, was still behind. £80 had

been advanced to the Centre, of which £40 had been repaid. The efforts, which he felt sure the leading spirits of that Centre would make, would result in the deficiency being soon made good, thus placing the Centre in a thoroughly sound position. He urged upon the attention of Members, by relating a case in his own experience, the great benefit which would accrue to the Institute if everyone would keep in view the work they had at heart by taking an interest in young engineers, and encouraging them to attach themselves to the Institute, and by enlisting the help and sympathy of all engineers to advance its best interests. He begged to submit the Revenue Account and Balance Sheet to the meeting on behalf of the Treasurer, Mr. Blake.

MEMBERS OF THE INSTITUTE RESIDENT AT THE BRISTOL CHANNEL CENTRE, 1905.

	DUR.	PAID.	ARREARS PAID.	TOTAL RECEIVED.	SHORTAGE EXCLUSIVE OF ARREARS.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
159 Members at 21s.	166 19 0	121 19 0	35 14 0	156 13 0	45 0 0
50 Companions at 21s.	52 10 0	35 14 0	13 13 0	49 7 0	16 16 0
10 Associate Members at 21s.	7 10 0	3 0 0	1 10 0	4 10 0	4 10 0
6 Associates	3 0 0	1 0 0	—	1 10 0	2 0 0
225 TOTALS	£ 229 19 0	161 13 0	50 17 0	212 0 0	68 6 0

Actual Cost per Member to the Institute :—

Grant remitted to Cardiff for local expenses per Member ...	£ s. d.	£ s. d.
Cost of Transactions over general membership	0 11 3½	
Maintenance of Institute over general membership	0 5 3½	
	<u>0 7 3</u>	1 3 9½
Received per Member connected with the B. C. Centre at Cardiff	0 18 10	
Debit per Member connected with the Centre paid out of the general funds	0 4 11½	
	<u>0 4 11½</u>	1 3 9½
Balance of Loan per Member connected with the B. C. Centre...	0 3 6½	
Liabilities as per Balance Sheet submitted by Local Treasurer B. C. Centre, less Cash in hand	0 5 4 = 0 8 10½	

REVENUE

Dr. 1st February, 1904, to

		£	s.	d.	£	s.	d.
To General Expenses:							
	Bank Charges	0	13	8			
	Postages	25	11	10½			
	Telegraphic Address	1	1	0			
	Inscription on Medal	0	3	6			
	Engrossing Certificates	2	2	0			
	Stationery and General Printing	13	10	3			
	Assistant Secretary's Salary	100	0	0			
	Chartered Accounts' Fees	10	10	0			
	Sundries	1	0	6			
					154	12	9½
„ Rates, Taxes, &c.:							
	Rates, Taxes, &c.	34	17	7			
	Gas	11	0	7			
	Water	4	16	0			
					50	14	2
„ House Account:							
	Caretaker's Wages	66	11	0			
	Coals	5	12	0			
	Sundries	0	16	4			
	Garden	10	0	0			
	Repairs	17	6	7			
					100	5	11
„ Insurance							
					1	17	6
„ Advertisements							
					9	10	0
„ Depreciation:							
	On Furniture, Institute	11	15	6			
	„ „ B.C.C.	6	2	11			
	„ Additions, &c., to Building	26	3	9			
					44	2	2
„ Reading Room Expenses							
					12	3	5
„ Papers and Discussions:							
	Printing and Lithography	187	19	1			
	Reporting	17	8	0			
	Postages	36	3	8½			
					241	10	9½
„ Interest on Denny Gold Medal Fund							
					10	0	0
„ Interest on Stephen's Legacy Fund							
					2	10	0
„ Recreation Section:							
	Expenses, Dinner, Institute	145	0	10			
	„ „ B.C.C.	86	13	10			
	„ Conversazione	84	14	5			
					316	9	1
„ Transaction Section:							
	Expenses Binding Volumes		19	14	5		
„ Experimental Department Expenses							
					5	6	9
„ Bristol Channel Centre:							
	Expenses	0	7	6½			
	„ as per their Account	94	3	8			
					94	11	2½
„ Balance							
					225	8	10½
					<u>£1,288</u>	<u>17</u>	<u>1</u>

ACCOUNT.

31st January, 1905.

Cr.

		£	s.	d.	£	s.	d.
By Entrance Fees:							
Members	62	13	0
Associate Members	4	0	0
Graduates	1	0	0
Companions	2	0	0
					69 13 0		
„ Subscriptions (including propn. of B.C.C.):							
Members	813	6	1
Associate Members	25	6	3
Associates	22	4	5
Graduates	6	15	5
Companions	57	10	6
					925 2 8		
Less Subscriptions in Advance:							
Members	£135	13	1	
Associate Members	3	0	0	
Associates	2	1	3	
Graduates	1	2	11	
Companions	6	14	9	
					148 12 0		
					776 10 8		
„ General Revenue:							
Billiard Table Receipts		1	12	0
„ Interest on Consols							
					14 14 4		
„ Interest on Deposit Account							
					5 7 11		
„ Recreation Section:							
Donation, Dinner, Institute	4	4	0
Sale of Dinner Tickets, Institute	105	8	0
„ „ „ B.C.C.	79	15	9
„ Conversation Tickets	85	2	6
Balance of 1904 Accounts	0	9	3
					274 19 6		
„ Donation to Library							
					1 1 0		
„ Transaction Section:							
Sale of Bound Volumes		24	9	3
„ Experimental Department: Donation..							
					1 0 0		
„ Bristol Channel Centre:							
Proportion of Subscriptions:—							
Members	94	3	5
Associate Members	3	0	0
Associates	1	2	7
Companions	29	2	0
					127 8 0		
Less Subscriptions in Advance:							
Members	£7	14	0	
Associates	0	4	7	
					7 18 7		
					119 9 5		
					£1,288 17 1		

**INSTITUTE OF MARINE ENGINEERS, 58, Romford Road, Stratford, E.
BALANCE SHEET, 31st JANUARY, 1905.**

	£	s.	d.		£	s.	d.
To Sundry Creditors—							
Institute	189	6	4				
Bristol Channel Centre	91	10	7				
Subscriptions in advance	280	16	11				
Denny Gold Medal Fund	156	10	7				
Stephen's Legacy Fund—	261	13	4				
Balance, 1st February, 1904	102	2	6				
Add Interest	2	10	0				
Revenue Account—	104	12	6				
Balance, 1st February, 1904	2029	14	8½				
Add Balance of Revenue A/c	225	8	10½				
	2255	3	7				
NOTE— The Bristol Channel Centre have been granted a loan of £80 to bear interest at Bank rate, of which £40 has been repaid.							
By Cash—				Assets.			
At Bank (Institute)	183	15	2	Sundry Debtors for Conversazione Tickets			
" (B. C. C.)	26	17	0	Freehold of Institute Buildings, with extension, 58, Romford Road	1500	0	0
On Deposit (Institute)	300	0	0	Additions, Alterations and Repairs to Building—			
In Hand (Institute)	1	18	10	Balance, 1st February, 1904	104	15	0
Cheque in transit from Inst. to B. C. C.	512	11	0	Less Depreciation	26	3	9
	529	4	0	Furniture at Institute—			
	525	17	6	Balance, 1st February, 1904	235	9	9
	78	4	0	Additions	0	10	9
				Less Depreciation	236	0	6
				Furniture at Bristol Channel Centre—			
				Balance, 1st February, 1904	122	19	2
				Less Depreciation	6	2	11
				Insurance unexpired			
				Rates and Taxes in advance			
					116	16	3
					0	19	10
					4	19	1
					£3058	16	11

In accordance with the provisions of the Companies' Act, 1900, we certify that all our requirements as Auditors have been complied with. We have audited the above Balance Sheet, and we are of opinion that such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Institute's affairs as shown by the books of the Institute and the audited Balance Sheet of the Bristol Channel Centre.

London, E.C.
20th March, 1905.

* Since received. The balance was struck before the account was closed.

FEAST, DRAKE & CO.,
Chartered Accountants.

ST. GEORGE'S HOUSE, 6 AND 8, EASTCHEAP,
LONDON, E.C.

20th March, 1905.

To the Members of the

INSTITUTE OF MARINE ENGINEERS,

58, ROMFORD ROAD, STRATFORD, E.

GENTLEMEN,

We have to report that we have examined and checked the London Accounts of your Institute for the year ended 31st January, 1905.

The Bristol Channel Centre Balance Sheet, audited by a Cardiff firm of Chartered Accountants, has been incorporated in the Balance Sheet of your Institute.

We are of opinion that the Balance Sheet of your Institute is properly drawn up, so as to exhibit a true and correct view of the state of the Institute's affairs as shewn by the books of the Institute and the audited Balance Sheet of the Bristol Channel Centre.

We have ascertained that the Title Deeds of the Freehold Property are held by the London and County Banking Co., Stratford, for safe custody; and we have verified the Balances at the Bank, and the Investment in Consols.

We are, Gentlemen,

Yours truly,

(Signed) FEAST, DRAKE & Co.,
Chartered Accountants.

Mr. F. W. SHOREY said he would like to ask one or two questions. Mr. Mather had given them a clear account, but he would call attention to the interest on the Stephen Legacy Fund, £2 10s, and would like to know if that was to be allowed to accumulate or to be used?

The HON. SECRETARY replied that part had been used to purchase a lantern and gear the previous year, and was available for special claims.

Mr. SHOREY continued: He felt he must enter his protest against the loss in the recreation section. He thought that everything in this department should be

made to clear expenses, both in connection with the Institute itself and the Centres. In regard to the Bristol Channel Centre, it said "as per account," he had not seen the balance sheet of the Centre, but he hoped it was an improvement on previous years. Referring to the £80 advanced to the Bristol Channel Centre, he did not think they should lend money readily like that, especially when the Centre seemed to be deep in debt and unable to control their finances.

Mr. W. LAWRIE said that the deficit on the recreation section had been prominent during the last two years. In previous years the profit on the Conversazione had generally helped to make up, with donations, the loss on the Dinner. The Annual Dinner was an official function of the Institute, thus forming a legitimate charge on the funds. The Conversazione had nearly always paid its way, usually making a profit. With regard to the Bristol Channel Centre, the accounts had been rendered and had been through the hands of the Accountants. The totals were entered up in the balance sheet, although the details were not printed. The question of the recreation section had been before the Council, and they were fully alive to the fact that these functions should clear themselves, and were anxious that they should do so. On the Conversazione a profit was estimated, but it was not possible on the Dinner. That should be clearly understood by every Member of the Institute. He thought it was beneficial to the Institute to have an Annual Dinner, and considered that those who did not hold that view ought to bring the matter to a crisis. He did not know why the subject should be brought up every year without a resolution being proposed and voted upon. Mr. Shorey had had experience of the Bristol Channel Centre, and knew some of the difficulties to be dealt with. The Council had, however, brought forward some regulations whereby they hoped to be able to deal with that or any other Centre in a proper fashion. The Articles of Association and By-Laws of the Institute made it very clear that they were to carry on

an Institute for the promotion of the education and the work of marine engineers, and advancement of marine engineering, and that was why an advance had been given, on loan, to the Members attached to the Bristol Channel Centre, with an idea of trying to bring them to the front, so that they would promote and advance the work of the Institute. He hoped, when those By-Laws came to be discussed, that Members would say what they thought. So far, the Council had been very anxious to get the Bristol Channel Centre finance business cleared up. He thought that the Council had been very much in earnest in regard to the question of finance, with the assistance of Mr. Blake.

Mr. F. W. SHOREY said he was glad to note the Council proposed to vigorously enforce articles 18 and 19 of their Association. He had been asked by an engineer what benefit he would get from joining the Institute, as he seemed to consider that unless he could get some material benefit, it was not worth joining; such an attitude showed that he had not respect enough for his calling to be a true engineer. Some Members had bad memories, and they forgot to pay their annual subscriptions. It was not creditable to one calling himself a marine engineer to act so. How could the Institute be carried on by such actions? They could do very well without that class of man, and he was of opinion that they should act as proposed. He had much pleasure in proposing to amend By-Law No. 40 to read as follows:—"The Capital Account shall consist of all Entrance Fees, Composition Fees, and of any Bequests that may be made to the Institute. All Capital Account Money shall be invested in accordance with No. 40 of the Articles of Association. The Current Account shall consist of all Annual Subscriptions, and of the Annual Interest derived from the Invested Capital of the Institute, but not of the Annual Interest derived from sums given or bequeathed to the Institute for a specific purpose."

Mr. A. H. MATHER, in seconding the alteration,

explained that the effect would be, that instead of two-thirds of the subscriptions being placed to current account, the whole of those subscriptions would go to it. The original By-Law was framed in the first place to afford a nucleus for a Reserve or Building Fund, and during the last year or two it had been found necessary to expend more money on current account than provided for by the annual income under this method, and that the money could be better used by re-arranging the accounts in the manner proposed. He begged to second the proposition that the By-Law be amended as proposed.

The CHAIRMAN: Before I put this to the meeting, I will ask if there is any amendment to the proposition.

Mr. SHOREY said he thought Mr. Mather had explained the object in view, and that it had been tried in place to the capital account only one-third of the subscriptions, and the remaining two-thirds to the current account, and that they had found it better to take the whole of the annual subscriptions and place them to the current account.

The CHAIRMAN: What would the capital account have amounted to at the present time, had it been found necessary, and had circumstances admitted of it being set aside for a building fund.

Mr. MATHER said that at present, reckoning up from the start of the Institute to date, the capital account should stand at about £3,600, while the credit assets at the lowest valuation stood at over £3,000, so that the original intention of the Founders had been carried out in effect. The large arrears due, the outlay involved by lapsed members, those to whom Mr. Shorey had referred, the special expenses necessary for the upkeep of the premises, had led to deficits, but when all was considered, the position of the Institute financially was good, and it showed the clear-sightedness of the Founders in their estimate of what was required, although the object in view had been accomplished by

different means than provided for, namely, by special effort and the liberality of well wishers who subscribed for the building.

The CHAIRMAN then submitted the resolution, and declared it carried.

Mr. JOHN MCLAREN, in proposing "By-Laws for the Establishment of Centres," said: The consideration and establishment of centres dates from a very early period in the history of the Institute, as we find that during the first year discussions took place on the subject of such. It was felt that, as far as possible, all Members should enjoy the same privileges and opportunities of carrying out the real work of the Institute as set forth in the Articles of Association, viz.: "To promote the science and practice of Marine Engineering in all its branches; to enable Marine Engineers to meet and to correspond, to facilitate the interchange of ideas respecting the improvements in, and original and improved methods of working machinery, and the publication and communication of information on such subjects; to maintain and improve the status of Marine Engineers and the profession of Marine Engineering; to afford facilities for education, study, and self-culture to Marine Engineers; and to promote their progressive advancement in knowledge of their profession." Other institutions and clubs have their meetings periodically, at intervals more or less long, and in some cases Members resident beyond a certain distance from head-quarters pay a smaller subscription to compensate them, to some extent, for the fewer privileges they can enjoy, and for the extra expense involved on the occasion of their visits to the Central Rooms. The question of raising the annual subscription to Members resident within the area of London, or of reducing it to Members outside the area, was discussed, but neither of these views were considered advisable to recommend by the Council in the early years of the Institute.

In the first Annual Report of the Institute occurs

this recommendation :—"It has also been proposed that at several ports, where the numerical strength warrants such an arrangement, meetings should be held simultaneously with the meetings in London, at which the same papers should be read and discussed. The discussions at these ports to be printed in the published transactions. Cardiff may be mentioned as one where the membership is almost strong enough already to carry out this proposal."

Then in the next report appears the following :—
 "One Local Centre, called the Bristol Channel Centre, has been so far arranged that a Chairman, Vice-Chairman, and Honorary Local Secretary were appointed in November. A deputation, consisting of Professor Elliott, Messrs. John Fownes and Elms, met the Council in the Langthorne Rooms on January 27th, 1901, when a cordial understanding was come to in reference to the broad principles on which the work of the Local Centre should be conducted, and its close connections with the Main Centre maintained. The details were left for future consideration and arrangement. It will be noticed with pleasure and satisfaction that the Senatus of the University College of South Wales and Monmouthshire has granted to the Members of the Bristol Channel Centre the free use, for the purpose of meetings, of certain rooms in the University College, Cardiff. A resolution was passed at a meeting of the local Members of the Institute in Cardiff, to the effect : "That the best thanks of the Institute of Marine Engineers be given to the Registrar and Council of the University College of South Wales and Monmouthshire for granting us the free use of the rooms in the College for the purpose of holding local meetings."

At the Annual Meeting held in March, 1902, Mr. Archibald Thomson (Vice-President), gave a few remarks on the subject of Local Centres, advocating the view that, to embrace the whole membership, and give as nearly as possible the same facilities for the interchange of thoughts and experiences to Members

resident at different ports, the establishment of Local Centres should be encouraged and conducted on a sound basis, and amenable to the central body; these should prove a source of strength to the Institute as a whole. The Central Council could, and should, legislate the whole; each Centre might be represented on the Council, while each Centre should carry on its own work locally. The same papers could be read and discussed, and the whole published by the general Council. Mr. Thomson considered that a scheme for extending the Institute by means of local effort at the various ports would prove of great benefit. He mentioned Liverpool and Glasgow as ports where, by the co-operation of Marine Engineers resident or trading there, the operations which had been carried on so successfully in London might be extended to various parts of the kingdom with the same beneficial results to all concerned. A Local Centre had been already so far established at Cardiff, and promised to be a most flourishing branch. Then in volume 3 we find it reported that "The Bristol Channel Centre has been progressing and developing during the session with Professor Elliott as Local President."

The history of the Bristol Channel Centre has been one of progress in respect to the increase of Membership and Meetings for intercourse—those in connection with the social department being especially successful,—while the papers read before the Institute by Members attached to the Centre have been valuable contributions, as evidenced by the Denny Gold Medal having been awarded twice to Members resident within the Centre limits.

The Council have been anxious to encourage the Members at the Bristol Channel Centre as far as possible, and to bear with them in the hope that, after the Centre had been established, a local fund might be raised to cover local expenses, but, unhappily, this hope has not been fulfilled, and, on the other hand, debt has been incurred, in spite of the liberal allowance made

during recent years, and which the Council cannot recommend should be continued on such liberal terms.

An ideal Centre should be managed locally, so that not only shall it be a source of strength to the Institute itself, in regard to Membership, Papers, and its various Meetings, but also financially; and in looking through the reports and references made to the Bristol Channel Centre in the Annual Reports, we find that for several years it fulfilled all these desiderata, but during recent years it has not done so. A certain amount of laxity to the finance appears to have crept in, which has resulted in trouble and unsatisfactory balance sheets. In January, 1901, according to the Bristol Channel Centre balance sheet, embodied in the Annual Report, the balance on hand was £107 2s. 2d., and during 1902 £183 was received from the Institute; these amounts were supplemented by profits on an excursion and dinner; the expenses amounted to £312, including £114 for furniture, &c., and the year's work resulted in a debit balance of £2 15s. 1d. Deducting the amount paid for furniture, the general expenses amounted to £198. The debit balance, January, 1904, was £70, and in January, 1905, it is about £91, the valuation of furniture being about £123 on the Institute's account, while £40 of the loan granted to the Centre still remains unpaid, the amount thus due by the Centre to the Institute, including the liabilities, is £131, less the balance in hand.

A Centre was established at Southampton in May, 1894, and was carried on till 1900, when it was given up for lack of sufficient local interest and support to carry it on. Some correspondence having taken place with regard to the formation of other Centres, it was considered advisable to have rules and regulations for the guidance of Members, and the rules submitted and approved by the Council are as follows, the adoption of which I beg to propose for incorporation in the By-Laws:—

II. Establishment of Centres:—

In order to make clear the basis on which centres may be formed and carried on, and at the same time respond to the

wishes which have been expressed from time to time by Members resident at ports where a desire exists for the establishment of such Centres, Regulations are now proposed for the guidance of Local Committees, such Regulations to be strictly adhered to in all cases.

1. The Council may establish Centres of the Institute at ports where a sufficient number of Members are resident to justify such being carried on satisfactorily and efficiently by a Local Committee.
2. The Council may close a Centre when, in their judgment, it is found necessary to do so.
3. Each Centre shall be conducted in accordance with the Articles of Association and the By-Laws of the Institute, and any Local By-Laws for the guidance of the Local Membership and Committee must be so framed, and must be approved by the Council before becoming operative.
4. The local work of the Centre shall be carried on by a Local Committee of Members, appointed by the Council, or elected by the Local Members, and approved by the Council.
5. The Local Committee shall consist of Honorary Local Secretary, Honorary Local Treasurer, and six or more Members of Committee, also a Chairman and a Representative to Council, who shall receive notices of Council Meetings and of any special business.
6. All local expenses shall be borne by the Local Members at the Centre, who, in addition to their subscription to the Institute, shall contribute towards the local expenses, as may be found necessary by the Committee, who shall be responsible for such expenditure to the Members locally.
7. In the event of a grant of money being found necessary to establish and carry on the local work of a Centre until it is established on a working basis such grant may be allowed to the Local Committee for this purpose, but only by, and with the sanction of, the Council, and for the specified amount, on a three months' notice, before the sanction is deemed approved.
8. While the Council of the Institute shall in no way be responsible for the local expenditure, the Local Committee shall provide and submit to the Council half-yearly Balance Sheets, showing the total income and expenditure in connection with the Centre, also an Annual Report, Balance Sheet, and Statement, with inventory of all property belonging to the Centre and the Institute.

9. At the meeting of Council summoned to consider the proposal to establish a Centre, the Hon. Treasurer of the Institute shall submit a statement, on which the Council can signify its approval and recommendation before the Centre shall be sanctioned, such statement to show that the finances of the Institute justify the proposed grant, if any be applied for, to assist the Centre.
10. The Council shall not be responsible for any expenditure of any Centre beyond the sum granted to the Local Committee of the Centre by the Council.

Mr. D. HULME, in seconding, said he would like to express his own opinion on the subject, as he firmly believed in Centres. He thought any Centre, if thoroughly established, could be self-supporting. Members in various districts had desired to form Centres, and he was quite confident that one or two he knew of could organise a Centre, and, if they went the right way about it, get local representative gentlemen to give them enough money for premises. With a few willing and able workers in the district they could easily accomplish this, while, he had no doubt, the parent Institute would also be willing to help them along. He was pleased to second the proposition.

Mr. S. C. SAGE explained that he was opposed to Centres, as their experience did not in his opinion warrant them. The Bristol Channel Centre had been a source of trouble and a detriment to the Institute rather than a help. He proposed as an amendment that the By-Laws be not altered so far as they related to Centres.

Mr. C. PERKINS seconded the amendment on the same grounds.

Messrs. SHOREY, LAWRIE, and HAWTHORN also spoke on the subject before the amendment was put to the meeting.

The amendment, and afterwards the resolution, were put to the meeting by the Chairman.

The resolution was carried by a large majority.

Mr. J. R. RUTHVEN then proposed the adoption of the reports and balance sheets. He remarked that he would rather have seen their balance sheet a little bit nearer in expenditure and income, or in other words more money expended on the work for the benefit of the Members.

Mr. E. W. Ross seconded the proposition, which was carried.

The CHAIRMAN then proposed that a vote of thanks be accorded their retiring President, the Hon. C. A. Parsons, C.B. They were, he said, very much indebted to him for taking on the duties of President, and much regretted that his term of office had now expired. He had certainly been a useful Member, and had given them a good and interesting address. He was a man of whom they all ought to be proud.

Mr. W. LAWRIE said he had much pleasure in seconding the vote. He said it was a very opportune circumstance that the Hon. C. A. Parsons should have been the President of their Institute at a time when such epoch-making steamers as the *Victorian* and *Virginian* had been put on the Atlantic service. He was sure the record of those steamers would be followed very closely by marine engineers generally, and it would be the hope of every Member that those boats would be a success. The amount of energy and of time expended by Mr. Parsons in producing such turbines as had been placed in those steamers, merited the fullest sympathy of the Meeting with him in his efforts to bring out something that would be better than what they had at present. The field of the inventor, as a rule, was not a very pleasant one, and a lot of difficulties had to be contended with. Mr. Parsons, in working out his scheme for the steam turbine, had overcome very many difficulties, and now that he was making such headway, not only in the mercantile marine, but also in His Majesty's Navy, he thought they might come to the conclusion that he had obtained a very fair measure of success. They ought to con-

gratulate him on his great achievement. He had great pleasure in seconding the vote of thanks to their retiring President.

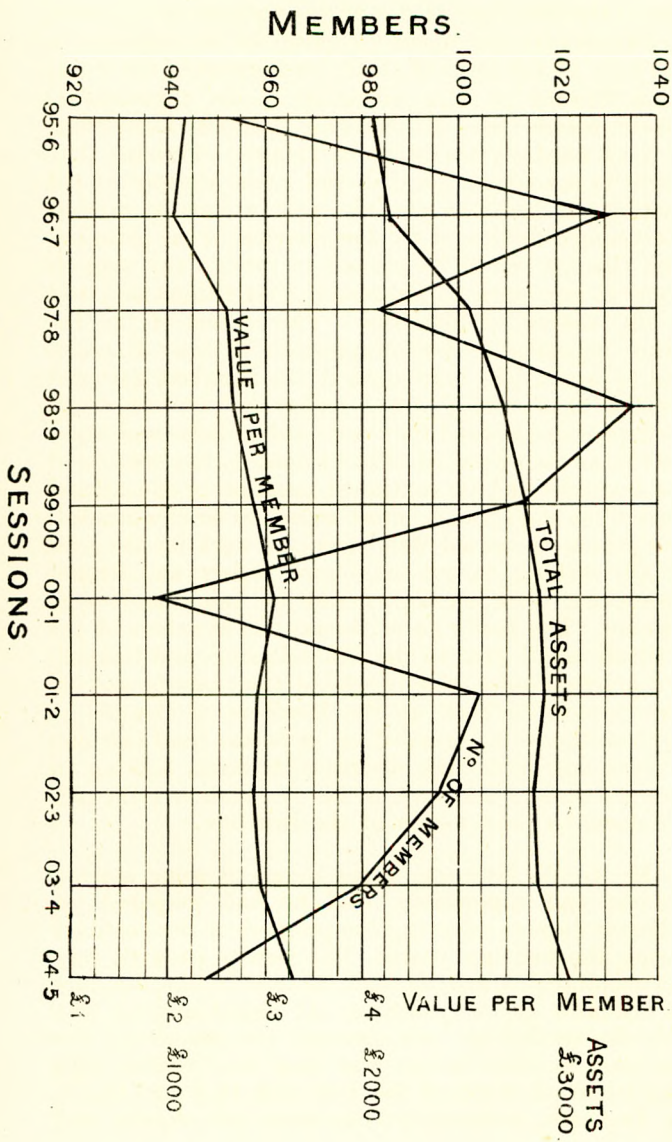
Mr. J. G. HAWTHORN proposed a vote of thanks to the retiring Office-Bearers and Council. They all knew, to a certain extent, that much time must be spent to carry on the work of the Institute, but it had always been a work of love. First of all they loved their profession, and they loved to see the young men get on; secondly, they had been trying to do good in endeavouring to improve the status of the profession; therefore, he would propose a hearty vote of thanks to the retiring Office-Bearers and the Members of Council. He knew they were all good hard workers, and were entitled to every bit of gratitude they could give them. They always had the well-being of the Institute at heart.

Mr. D. S. LEE seconded the proposition.

The HON. SECRETARY responded, and referred to his early reminiscences in connection with the formation of the Institute. He was pleased to hear the incident recorded by Mr. Mather, and also Mr. Shorey's remarks, and thought all would endorse the views expressed that they should try their utmost to arouse and interest the juniors. If they did not get the junior element to take up the work it would die a natural death when they, the seniors, passed from the field. The case cited by Mr. Shorey showed a selfish habit of mind, which could not be condemned too strongly. It was a most difficult matter to get the young junior engineer to take that interest in his profession he ought—a state of affairs which every Member ought to do what he could to effect a change in. Let the seniors do all they could to encourage them, not only to come to the Institute, but to take a deep interest and a warm pride in their profession, in place of looking upon it simply as a money-making business. The juniors of to-day were those whom they now looked to as the future leaders of thought and practice. It was said, at



SECTION



one of the Meetings, that a large employer of engineers in this country had opened a school for his apprentices, but only 10 per cent. of all the youngsters in the works came forward to take advantage of the opportunities placed before them of obtaining technical knowledge. A very unhappy condition of things. Perhaps they ought to encourage the club and social element of the Institute as much as possible, with a view to interest the younger section of the membership in the premises. The Council would be pleased to receive any suggestions, at any time, to improve the conditions and add to the comfort of Members. The success of the Institute depended on the co-operation of every Member, and he would like very much if the Members gathered together that evening would realise the fact that, while their presence showed they were enthusiastic and eager for the advancement of their profession, the welfare of the Institute, and its continued progress in educational work, they might each infect others to be like-minded, and gain an increased Membership to work for the good of all, seeking to get out better papers and livelier discussions, then success would be more and more assured. The best vote of thanks the Members of the Institute could give to the Office-Bearers and Council, in a practical form, was to second their efforts, and do their utmost to back up the Members of Council to carry on the work,—carried on as it was from patriotic motives, and with high desires and ideals, holding in view the objects set forth in the foundation principles laid down by the founders of the Institute.

Mr. G. W. NEWALL, in the course of some general remarks and suggestions, said he had prepared an indicator diagram showing the progress of the Institute during the last ten years. The results showed very encouraging progress, as could be seen in the diagram he exhibited to the meeting. It repaid anyone who took the trouble to look through the annals of the Institute, as they would find they were replete with expressions of some of the best men they had had in the Institute, pointing out its aims and objects, and

offering encouragement to the junior Members; but with regard to the young engineers in training, the results were not what they should be or what ought to be expected. They had one of the best technical libraries appertaining to marine engineering and electricity, which was very little used, comparatively. That seemed a dreadful thing to have to say, when they considered the marine engineer of to-day had charge of machinery worked by steam, electricity, and by hydraulics; refrigerators, cooling by means of air, CO₂, ammonia or sulphuric acid, ventilating machinery and its attendant motors, forced and induced draught boilers, and auxiliary machinery of all kinds—when they considered all these things, he should keep in touch with up-to-date practice, to which end their library would be found useful. If they could do anything to push the juniors into a better condition of mind and thought for educating themselves up-to-date, they should do it, because they were coming on to take their places as followers of the present generation. The engineer of the present day had to study steam, physics, pneumatics, electricity, and hydraulics, as pertaining to moving parts, and yet the bookcases of the Institute were too seldom opened. They had heard a good deal of Parsons' turbo-motor; some of them might be aware of another turbine coming out, and that was the gas turbine. It had only three elements: a fuel, an air-mixing arrangement, and its application, the mixture being taken to a strong cylinder, where the mixture was ignited, thence to the turbine itself, where the explosive was used in much the same way as in the steam turbine. Few of them knew much about the turbine question, and he would suggest that their President be approached with the idea of having an old turbo-motor sent to the Institute, simply for them to take to pieces and learn something of its internals. They might also obtain a small dynamo-motor to pull to pieces, and learn something of its connections in detail. With regard to prizes—a gold medal was given away for the best paper every session. The graduate was perhaps disappointed that he got no

special encouragement in his section, and he thought it might be worth considering whether they should give a prize for the junior also to compete for. Mr. Newall also suggested an "Inquiry Board," on which Members who wanted information regarding engineering or other matters, might write out questions, and those who knew where the desired information could be obtained, could write it down against the enquiry—"see so and so."

Mr. J. CLARK said he was glad to see the great improvement in the percentage of subscriptions received from each grade of membership. In the three years ending 1904, the Members contributed 84·3%; Companions, 72·3%; Associate Members, 73·3%; Associates, 57·6%; Graduates, 46·3%; whereas for the present year Members contributed 98%; Companions, 94%; Associate Members, 93%; Associates, 125%; Graduates, 100%. What might be called a contingent balance sheet, embracing the number of Members of each grade in arrears, might be made up each year, and the investments, such as consols, also be embodied in this account. In the balance sheet, for instance, consols were valued at 85 only, while six points could be added to make up to present market value. Last year this item caused a presumed loss of £110 to be shown, by being incorporated in the balance sheet. If the £1,500, which the premises cost, was invested in stock, such would show a production each year, and as house property got the name of being a 6% investment, he thought that £90 a year should be charged as rent. These suggestions he thought worthy of consideration under finance. The transactions were the sheet anchor of the Institute, and unless these were kept well up, the membership would dwindle away, and he would urge that the money spent under this head should not be stinted. For the four previous years the average cost per Member was 6/9 for the papers and discussions; this year it worked out at about 5/3 per member. The two items of rent and cost of transactions on the same ratio as the previous years would have reduced the balance from £225 to something like £65,

COMPARATIVE TABLE SHOWING

Membership from Transactions, exclusive of Hon. and Probationary.

Year:—	@	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.	1904-1905.
Members	21/-	763	720	762	765	761	743
Companions	21/-	73	88	93	93	95	80
Assoc. Members	15/-	63	43	48	46	44	37
Associates	10/-	63	55	58	51	40	34
Graduates	5/-	42	28	29	28	24	21
TOTALS		1,004	934	990	983	964	915

Subscriptions actually Received.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Members	643 0 4	712 11 5	670 13 11	670 19 1	674 9 9	764 2 5
Companions	22 0 3	80 9 10	66 1 8	78 10 0	69 15 9	79 17 9
Associate Members	30 17 6	33 3 6	32 16 8	21 6 9	21 19 9	25 6 3
Associates	25 0 8	23 17 8	15 14 9	13 1 9	13 11 1	21 1 2
Graduates	8 1 6	6 15 5	3 9 7	2 19 7	2 15 10	5 12 6
TOTALS	729 0 3	856 17 10	788 16 7	786 17 2	782 12 2	896 0 1
Entrance Fees	91 16 0	89 15 0	78 0 0	60 0 0	66 0 0	69 13 0

Main Items of Expenditure.

Transactions	186 1 3	315 11 4	279 8 1	357 5 9	350 12 10	241 10 9½
Maintenance	305 5 6	326 15 7	326 8 0	407 15 9	424 19 7	329 3 9½
Debit Balance	—	—	—	103 8 9	291 18 7	—
Credit Balance... ..	180 10 8	51 3 11	24 1 4	—	—	225 8 10½

The Expenditure for Members attached to the Bristol Channel Centre according to the number on the Roll for 1903-4, stands as follows:—

	£ s. d.	£ s. d.
Average Subscription per Member	0 16 9	
Actual Net Extra Cost per Member	0 11 10½	
	—	1 8 7½

Actual Expenditure by the Institute per Member:—

Grant allowed for local upkeep and to provide for a self-supporting Centre, 75%	0 12 6½
Cost of Transactions	0 7 3½
Cost of Maintenance and upkeep of the Institute, at 58, Romford Road... ..	0 8 9½
	—
	1 8 7½

The Actual Cost per paying Member attached to the Centre is thus at the rate of 11/10½ over the average amount received.

MEMBERSHIP, INCOME, & EXPENDITURE.

Year :—	1899-1900.	1900-1901.	1901-1902.	1902-1903.	1903-1904.	1904-1905.
Official Number of Members :—	1004	934	990	983	964	915
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Members... ..	801 3 0	756 0 0	800 2 0	803 5 0	799 1 0	780 3 0
Companions	76 13 0	92 8 0	97 13 0	97 13 0	99 15 0	84 0 2
Associate Members	47 5 0	32 5 0	36 0 0	34 10 0	33 0 0	27 15 0
Associates	31 10 0	27 10 0	29 0 0	25 10 0	20 0 0	17 6 0
Graduates	10 10 0	7 0 0	7 5 0	7 0 0	6 0 0	5 5 3
Total Subscriptions	967 1 0	915 3 0	970 0 0	967 18 0	957 16 0	914 3 0
Actually received	729 0 3	856 17 10	788 16 7	786 17 2	782 12 2	896 0 1
Loss representing Arrears	238 0 9	58 5 2	181 3 5	181 0 10	175 3 10	18 2 11
Average Subscription per Member	0 19 3	0 19 6	0 19 6	0 19 9	0 19 10	0 19 11½
Average Subscription received per Member	0 14 6	0 18 3	0 15 11	0 16 0	0 16 3	0 19 7
Actual Sum spent per Member	0 10 11	0 17 3	0 15 5	0 18 1½	1 2 4	0 16 3
Cost per Member for Transactions... ..	0 3 8½	0 6 9	0 5 7½	0 7 3¼	0 7 3¼	0 5 3¼
Cost per Member for Maintenance	0 6 1	0 7 0	0 6 7	0 8 3¾	0 8 9¾	0 7 3
Balance per Member	+ 0 3 7	+ 0 1 0	+ 0 0 6	0 2 1¼	0 6 1	+ 0 4 11
Credit Balance	180 10 8	51 3 11	24 1 4	—	—	225 8 11½
Debit Balance	—	—	—	103 8 9	291 18 7	—

NOTE.—The above Totals are based on Full Annual Members in each Grade.

YEAR 1901-1902.

GRADE.	ACTUALLY RECEIVED.	FULL SUBSCRIPTIONS.	PERCENT. RECD.
Members	£670·7	£800·1	84 %
Companions	66·1	97·65	67 %
Assoc. Members	32·8	36·	91 %
Associates	15·7	29·	54 %
Graduates	3·5	7·25	49 %

YEAR 1902-1903.

Members	£671·	£803·25	84 %
Companions	78·5	97·65	80 %
Assoc. Members	21·4	34·5	62 %
Associates	13·1	25·5	51 %
Graduates	3·	7·0	43 %

YEAR 1903-1904.

Members	£674·5	£799·	84 %
Companions	69·8	99·75	70 %
Assoc. Members	22·	33·	67 %
Associates	13·5	20·	68 %
Graduates	2·8	6·	47 %

YEAR 1904-1905.

Members	£764·1	£780·15	98 %
Companions	79·85	84·	94 %
Assoc. Members	25·3	27·75	93 %
Associates	21·	17·	125 %
Graduates	5·65	5·25	107 %

Averages of Three Years previous to 1904-1905.

Members	84 %	Associate Members	73·3 %
Companions	72·3 %	Associates	57·6 %
Graduates	46·3 %		

These figures show an improvement all round, which is very satisfactory, although there are still many in arrears.

these considerations emphasized the necessity for careful watching.

He thought the funds of the Institute as a whole, should be consolidated to meet the case, when those now in harness would find the heat and burden of the day too much, as, when the one who might be called the father as well as the Honorary Secretary of our Institute laid down the reins. It might be difficult to obtain the services of another who would make the Institute of Marine Engineers his hobby, and be willing to sacrifice himself to further its interests. He would also suggest that a series of lectures on the lines of the "Cantor Lectures," delivered at the Society of Arts, might be arranged for, and included in the transactions. He thought such a series would be both helpful and valuable in many ways for the general good. Regarding the Recreation Section, it might be well to get up a guarantee fund, contributed to by Members able to do so, in order that the Institute as a whole should not suffer loss by the dinner or other social events; this was the rule which held good in many other kindred societies.

Mr. S. C. SAGE proposed a vote of thanks to the Honorary Solicitor, Mr. Neely, who had given them valuable advice when asked from time to time, and had given himself a great deal of trouble for the benefit of the Institute.

Mr. B. H. BUDDING seconded, and the proposition was agreed to.

The SCRUTINEERS then reported the ballot voting paper by the Members had resulted in the election of the following:—President, Sir Marcus Samuel; Honorary Secretary, Mr. James Adamson; Honorary Treasurer, Mr. James Blake; Honorary Financial Secretary, Mr. A. H. Mather; Honorary Minute Secretary, Mr. C. G. Newby; Members of Council, Mr. D. Hulme, Mr. W. C. Roberts, Mr. J. E. Elmslie, Mr.

W. I. Taylor, Mr. John Clark, Mr. W. Lawrie, Mr. S. C. Sage, and Mr. F. Cooper.

Mr. J. FLEMING proposed, and Mr. C. PERKINS seconded, a vote of thanks to the Scrutineers, which was carried.

Mr. G. SHEARER then proposed, and Mr. P. SMITH seconded, the appointment as Honorary Auditors, of Messrs. C. Perkins and John Clark. This was agreed to.

Mr. W. E. FARENDEN proposed, and Mr. D. S. LEE seconded, a vote of thanks to the Chairman.

The CHAIRMAN, in acknowledging the vote of thanks, said it was a great pleasure to him to be there that evening, to see so large an attendance, also to have the business carried on in such an amicable and friendly way; he might also add it must always be a pleasure for any Chairman to preside at such a meeting as they had just completed. They were very much indebted to all the gentlemen who had taken part in the meeting, in regard to the remarks they had made, and in the subjects brought before them. They were indebted to Mr. Newall and Mr. Clark for the remarks they had made. They were very valuable indeed, and would be taken to heart by the Council and dealt with in the best way possible.

This concluded the business.

Since the Annual Meeting was held a letter has been received from the Australasian Institute of Marine Engineers, of which the following is a copy, and the

contents are commended to the attention of Members who may be visiting the Australian Colonies:—

AUSTRALASIAN INSTITUTE OF MARINE ENGINEERS.

HEAD OFFICE: 346, FLINDERS STREET, MELBOURNE.

Districts—

BRISBANE.
WELLINGTON.
ADELAIDE.
AUCKLAND.
SYDNEY.
MELBOURNE.

10, QUEEN'S CHAMBERS,

WELLINGTON,

March 28th, 1905.

JAS. ADAMSON, ESQ.,

Hon. Secretary Institute of Marine Engineers,

Romford Road, Stratford, London.

DEAR SIR,

The Institute in New Zealand has now most comfortably furnished rooms with a fine reference and light reading Library, and on behalf of the Marine Engineers of New Zealand, I beg to extend to yourself and all the Members of your Association a hearty invitation to make use of them during visits to this Colony.

Yours faithfully,

A. R. HISLOP,

Secretary.

58, ROMFORD ROAD,

STRATFORD,

May 12th, 1905.

An Extraordinary General Meeting of the Institute of Marine Engineers was held here this evening in accordance with the Regulations under the Companies' Act, in order to confirm two Resolutions passed at the Annual Meeting held here on April 14th. The meeting was presided over by Mr. W. Lawrie (Vice-Chairman of Council).

The Hon. Secretary explained the objects of the meeting, and read the notice summoning the Members, and also the Resolutions awaiting confirmation.

The Chairman then put the First Resolution to the meeting to the effect that, By-Law No. 40 be altered

as proposed in the circular dated December 31st, 1904, issued with the notice summoning the Annual Meeting, and already approved at the Annual Meeting held on April 14th, 1905.

The Members assembled were then invited to express their views, and the Resolution was unanimously approved and confirmed.

The Second Resolution was next put to the Meeting by the Chairman, to the effect that the By-Laws relating to the Establishment of Centres of the Institute as proposed in the circular dated December 31st, 1904, passed and approved at the Annual Meeting held on May 12th, be now confirmed.

The Members were invited to give expression to their views on the subject, and there being no dissent, the Resolution was confirmed by a show of hands.

The Meeting then closed.

JAS. ADAMSON,
Hon. Secretary.

WM. LAWRIE,
Chairman.



At a Meeting of Council held subsequent to the Annual Meeting the undernoted appointments were made and confirmed:—

MR. A. H. MATHER as Hon. Treasurer in room of Mr. Jas. Blake, unable to continue in office.

MR. E. W. ROSS as Hon. Financial Secretary.

MR. H. BERTRAM as Hon. Minute Secretary, in room of Mr. G. Newby, resigned.

MR. J. HAWTHORN as Member of Council in room of Mr. C. Noble, unable to continue in office.

MR. W. McLAREN	-	-	Convener, Experimental Committee.
MR. W. LAWRIE	-	-	Library
MR. J. R. RUTHVEN	-	-	Papers
MR. F. COOPER	-	-	Press Cuttings
MR. S. C. SAGE	-	-	Property
MR. JOHN McLAREN	-	-	Reading Room
MR. W. I. TAYLOR	-	-	Recreation
MR. J. E. ELMSLIE	-	-	Issue of Transactions.

Chairman of Council.

MR. W. C. ROBERTS.

Vice-Chairman.

MR. W. LAWRIE.

Vice-Presidents.

MR. J. K. AITKEN (Africa).	MR. W. B. HARE (Queensland).
MR. J. C. ANDERSON (China).	MR. R. LESLIE (London).
MR. W. BIRKETT (Bombay).	MR. J. LOCKIE (Leith).
MR. W. BLACK (Callao).	MR. W. McLAREN (London).
MR. JAS. BLAKE (London).	MR. E. O. MURPHY (China).
MR. A. BOYLE (Southampton).	MR. JAS. NEILSON (Calcutta).
MR. W. BROCK (Dumbarton).	MR. W. J. PRATTEN (Belfast).
MR. G. W. BUCKWELL (Barrow).	MR. J. W. RICHARDSON (Liverpool).
MR. A. B. BROWN (Edinburgh).	MR. H. T. RICHARDSON (Vancouver).
MR. P. T. CAIRD (Greenock).	MR. JAS. SHIRRA (N. S. Wales).
ENGR.-CAPT. R. EDWARDS, R.N.	MR. C. SLATER (Chief Engineer).
PROF. A. C. ELLIOTT, D.Sc. (Cardiff)	MR. J. STEVENSON (Chief Engt.).
MR. C. H. GILBERT (Valparaiso).	MR. J. STEWART (Newcastle).
MR. JAS. GIRVIN (Chief Engineer).	MR. JAS. WEIR (Glasgow).
MR. J. M. GRAY (London).	

58, ROMFORD ROAD,

STRATFORD,

May 24th, 1905.

The resources of the Institute have been drawn upon by the Local Committee on behalf of the Members associated with the Bristol Channel Centre to an extent which, if continued, would end in financial disaster, that is to say, the Members at the Local Centre have been costing the Institute more than their subscriptions amounted to by several shillings per Member, and in addition a loan of £80 was granted to the Local Committee to enable them to meet certain local claims. £40 of this has been repaid, yet still liabilities were incurred, and the balance sheet of 1904-5 shows these to amount to about £90.

These points were discussed by the Council and a deputation from the Local Committee, when it was hoped that an energetic movement would be made to at once clear off the debt and bring about a better order of things as referred to in the Annual Report.

At a meeting of the Members associated with the Local Centre, held at Cardiff on May 20th, it was resolved on the recommendation of the Local Committee—previously submitted to the Council—to discontinue the Centre in view of the financial difficulties in connection with the work. This resolution does not necessarily imply a discontinuance of individual membership. It is not desirable to comment upon a result which the experience of the last few years has probably prepared many Members to expect, but it is hoped that the issue from the present condition will prove to be in the direction of a carrying forward of the principles and operations for which the Institute was founded with renewed energy, whether under the continued direction of the Council of the Institute or otherwise, in either case the Members resident on the Bristol Channel have the best wishes of the parent Institute and the Office Bearers and Council towards this end, with all prosperity.

A Local Committee of Members has been appointed to settle the claims in connection with the Centre, and is in communication with the Council on the subject.

JAS. ADAMSON,

Hon. Secretary.