

INSTITUTE OF MARINE ENGINEERS,

SESSION 1892-3.

LORD KELVIN, President.

REPORT

OF

THE PROCEEDINGS

AT THE

ANNUAL MEETING

HELD IN THE

PREMISES OF THE INSTITUTE,

58, ROMFORD ROAD, STRATFORD.

FRIDAY, 10th MARCH, 1893.

INSTITUTE OF MARINE ENGINEERS.



SESSION

1892-3.

ANNUAL MEETING

AT

58, ROMFORD ROAD, STRATFORD,

FRIDAY, MARCH the 10th, 1893.

— Programme. —

Part I.

Opening Remarks—

THE CHAIRMAN.

Appointment of Scrutineers—

Proposer—MR. G. CLEGHORN

Seconder—MR. J. S. G. LATTA

Proposed—

Messrs. R. Adam & J. J. Tyler.

Annual Report—

THE HONORARY SECRETARY.

(Mr. Jas. Adamson.)

Financial Statement—

THE HONORARY TREASURER.

(Mr. R. Leslie.)

The Bristol Channel Centre.

THE HON. LOCAL SECRETARY.

(Mr. Geo. Sloggett.)

Local Centres—

MR. J. R. RUTHVEN.

(Convener.)

General Remarks—

MR. A. W. ANDERSON.

Part II.

Adoption of the Report and
Balance Sheet—

Proposer—MR. ED. B. CAIRD.

Seconder—MR. M. B. TYLER.

Report by Scrutineers—

MESSRS. R. ADAM and

J. J. TYLER.

Vote of Thanks to Lord Kelvin.

Proposer—

MR. A. W. ROBERTSON.

Seconder—MR. J. R. RUTHVEN

Vote of Thanks to Office-bear-
ers and Council of 1892-3

Proposer—MR. J. BLAKE.

Seconder—MR. P. BARBOUR.

Vote of Thanks to the Auditors,

Messrs. J. Fortescue Flannery

and J. A. Rowe

Proposer—MR. NEWALL.

Seconder—MR. TYLER.

Extension of Premises—MR. JOHN TAIT.

Vote of Thanks to the Chairman—

Proposer—MR. J. H. THOMSON.

Seconder—MR. F. W. SHOREY.

INSTITUTE OF MARINE ENGINEERS.

SESSION 1892-93.

LORD KELVIN, PRESIDENT.

58, ROMFORD ROAD,

STRATFORD, ESSEX,

Friday, March 10th, 1893.

ANNUAL BUSINESS MEETING.

THE Annual Business Meeting of the Institute of Marine Engineers was held here this evening, presided over by Mr. Archibald Thomson (Vice-President), and the following report of the proceedings is now submitted for the information of members and friends:—

THE CHAIRMAN : In bidding you welcome to our annual meeting to-night, I cannot but express the pleasure I have in occupying the position of chairman on such an occasion. I feel I am in the presence of many who know more of the business of the Institute than I do, and who would, therefore, more fitly fill the position, but, with the guidance of the programme and your forbearance, I will endeavour to do my part. This is our annual meeting. To-day marks the completion of the fourth year of our existence, and I am sure we ought all to be thankful and pleased at the great prosperity which has attended the Institute. It was started, as you all know, by a few earnest and praiseworthy men, and at one time a great many thought that the proposal would never succeed—that, indeed, it would be a very short-lived affair—but we have lived long enough to prove that idea was erroneous. If you want any further evidence of its success, only look back at the men who have served as presidents—worthy and good substantial men—such gentlemen as Peter Denny, LL.D., Sir William Thomson, or, I should say, Lord Kelvin, whose year of office has now ter-

minated ; and we ought to be very proud that there is another great man who has consented to follow. All that, I think, is most gratifying, and it redounds very greatly to the credit of those who laid the foundations of the Institute, and who, by their great energies and perseverance, have gradually built up the institution until it has reached the position in which we find it to-day.—The gentleman sitting on my right hand (the Honorary Secretary) I always look upon as almost another Napoleon. He has got the bravery of a Napoleon with the tenacity of a Spartan. He is never tired, and he is indefatigable on all occasions. We all know how much we owe him. You have all received copies of the Annual Report or you will do so. It deals with the various matters that have engaged attention during the year, and there is therefore no necessity for me to dwell upon them. The great success of the Institute is seen in that part of the report which records that we have now got 650 Members. Our funds, too, are in a flourishing condition, although we should like to see them more so, but nevertheless we are capable now of meeting all our obligations. We are gradually increasing our resources, and we are thoroughly self-supporting. That is all very gratifying. There is no doubt in my mind that the future of this Institution will be still more prosperous and fruitful of a greater amount of good to the profession of marine engineering than it has been in the past. We are only at present in our infancy, and there can be no question that many of us will live to see the day when we shall have cause to reflect with pride and gratification upon our association with the Institute in the first years of its existence. There is one thing which testifies to our progress as an Institute in the size of these volumes of our transactions. The second is one third larger than the first, and the third volume will be as much larger than the second, so that every year we are getting more papers, more facts, more truths in connection with our grand profession to be stored up for the information and benefit of those young men who come after us. There can be no doubt about the great good that will be done in this way. I was pleased to learn that a drawing class had been established here, and although I do not know that I am exactly right in mentioning it, I think that in connection with the drawing class the Institute might perhaps give some instruction with a view of improving what I may describe as the commercial knowledge or ability of engineers. What I mean by commercial ability is the power to put down one's thoughts in writing—making reports or writing letters. We all know that there are many men who are excellent engineers and mechanics,

fearless in the engine room, brilliant and apt in judgment and decision, but if they want to put their views into writing many of them cannot do it at all. I am anxious not to hurt the feelings of any here, but I am speaking more particularly of the younger branches, and the deficiency is not so noticeable at the present day as formerly. But even now there are some young men who have not had the great privilege of a good education. They perhaps serve their apprenticeship in a country workshop, and when they come forward they find a great want owing to their inability to express themselves in writing. I think that something might perhaps be done in the way of tuition for some of these young men, so that they may be enabled, at any rate, to write a good business letter, a qualification which is certainly not to be despised. I cannot conclude without a further reference to our past Presidents, and especially to Dr. Denny, and our retiring President, Lord Kelvin. We are deeply indebted to these great men for coming amongst us and giving us their valuable assistance and support. Dr. Denny is a man whom I have had the pleasure of knowing for a great many years, and I have received at his hands many an act of kindness. I have also known Sir William Thomson very well for a great many years, and I understand that a vote of thanks is to be proposed to him for his services as President during the year just closed, therefore I must not dwell on this. I understand that our first business is the appointment of scrutineers, and our worthy Honorary Secretary will then read his annual report.

MR. G. CLEGHORN : I beg to propose that Mr. R. Adam and Mr. J. J. Tyler be appointed scrutineers, and I think I express the feeling of every gentleman present when I say, that I hope those who may be elected as office bearers and members of the Council will show the same spirit and carry on the business of the Institute with the same energy and unselfishness with which it has been carried on hitherto.

MR. J. G. LATTA seconded the motion, which was at once agreed to, and Messrs. Adam & Tyler thereupon retired to examine the ballot papers.

THE HONORARY SECRETARY : Letters expressing regret at their inability to attend the meeting have been received from Mr. L. P. Coubro, Mr. Fortescue Flannery, Mr. A. Beldam, Captain Hodgkinson, R.N., Mr. Churchill, Mr. Rowe and Mr. Hawthorn. Mr. Beldam has forwarded a cheque for £10, and Captain Hodgkinson, R.N., a cheque for £2 for the extension of premises.

THE CHAIRMAN : I will now call upon the Honorary Secretary to read his report.

INSTITUTE OF MARINE ENGINEERS.

SESSION 1892-3.

FOURTH ANNUAL REPORT.

ENDING JANUARY 31, 1893.

The year that has gone bears witness to a considerable advance made in the progress of the Institute, and that not alone in one direction; it is, therefore, with pleasure, we can look back and note the various landmarks made year by year, showing the advancing tide of prosperity, and now we record another year, which, under the distinguished name of Lord Kelvin, the President, has been fruitful of advancement and of prestige.

From the records of the past, members may form opinions as to the manner in which the Office Bearers and Council have conducted the affairs of the Institute, and discharged the duties and obligations laid upon them.

The MEMBERSHIP ROLL at the close of the financial year shows an increase of 120 over that of the previous one, comprising a total of 658, made up as follows:—

MEMBERS	522
ASSOCIATE MEMBERS	53
ASSOCIATES	37
GRADUATES	6
HONORARY MEMBERS...	40
TOTAL	<hr/> 658

Of these we have lost ten by the hand of Death:—

R. KELLY (Member), late of Greenock, who died at Poplar, in October, 1891, but intimation was not received until after the list was published last Session.

WILLIAM C. BUCHANAN (Member), who died at Greenock, March, 1892.

PETER G. SKELTON (Member), closely associated with the Bristol Channel Centre, who died at Antwerp, March, 1892.

DONALD McMILLAN (Member), who died at Forest Gate, in April, 1892. He was for about 20 years in the service of the Irawaddy Flotilla Co., and of the British India Co., and was amongst the first original members of the Institute. Mr. McMillan presented a paper in the course of the Session ending January 31st, 1892. (No. XXIX.).

GEORGE FOWNES (Member), well known and much respected as Honorary Local Secretary of the Bristol Channel Centre, and who proved a very active member of the Institute. Mr. Fownes died at Cardiff, in June, 1892.

JAS. WATSON (Member), who died in the North of Scotland, in May, 1892. He was for many years in the service of the British India Co., and much liked for his kindly manner by those who knew him.

E. H. MINNS (Honorary Member), who died after a long and protracted illness, in October, 1892.

JOHN VARLEY (Honorary Member), who died suddenly in Liverpool, in November, 1892. He was widely known as the Representative of the Leeds Forge Co., and the intimation of his sudden death was received with universal regret.

LACHLAN MACKENZIE (Member), who died at Forest Gate, December, 1892. He was for fully 25 years in the service of the British India Co., and was widely known and esteemed.

J. WILKINSON (Member), who died after a very brief illness on board the s.s. "Carthage," on the voyage from London to Brindisi, in January, 1893. He was in the service of the P. and O. Co. for about 30 years, and was highly esteemed for his genial nature.

There are also several names on the roll of whom no certain knowledge or advice has been received for a considerable time, the papers addressed, as given by members, having been returned through the Post Office. The attention of members is specially directed to this, in order that any change of address should be at once notified.

Seven members have resigned during the year, and their names, after carefully considering the circumstances, and finding that these were in no way compromising to the interests of the Institute, were removed from the roll.

The initials of designation should be specially noted, as, to avoid ambiguity in the abbreviation of the title of the Institute, the letters I. Mar. E. were adopted by the Council to distinguish the Institute from similar institutions and prevent misconception.

The new premises, 58, Romford Road, were taken possession of in February, 1892, and have been stocked and furnished so far as necessary. A list of the property was published in June, and a copy forwarded to each member, so that the stock purchased might be within the knowledge of the whole membership, and the donations to the property also thus acknowledged.

It has been decided to make several structural alterations to the premises in order to have suitable accommodation for meetings. The plans and specifications have been prepared and passed provisionally, but it has been deemed inadvisable to proceed with the work until, at least, the balance-sheet had been placed before the members, so that the financial position of the Institute might be shown.

The apartment which at present is utilised for a Billiard-room is hardly suitable for the purpose, on account of the dimensions; in the new plans provision is made for more accommodation.

The Billiard Table was placed in the Institute by a Member of Council, who offered it for the use of members, proposing to allow the drawings to go towards the re-payments; it has been considered, however, that the table should be purchased as soon as the funds justify such a course. It is also proposed to construct a bowling-green, and so utilise the ground in the rear of the premises. The plan for this has also been prepared.

The Library, Circulating Library, and Reading Room have been open every evening, and have been largely taken advantage of by members during the past Session.

By the kindness of one of the honorary members a large assortment of papers is provided weekly for the reading-room tables, in addition to those which are purchased or

subscribed for otherwise. The Institute Library and Loan Collection (the Malcolm Campbell Memorial) have been increased by several volumes during the year, as may be seen by reference to the catalogues.

The property of the Institute has been greatly added to during the year. Special mention should be made of a very fine oil painting presented by Mr. Peter Denny, LL.D., past president. The Museum has also grown in value and in interest; objects and curiosities or specialities are being added to the collection month by month.

Press cuttings, containing reports of interesting and notable events, have not been forwarded by members to the extent expected, considering how widely the membership now extends over the four quarters of the globe. It is proposed to widen the functions of the committee in charge of this department, so that recommendations may be submitted to the Council as to special cases which might be brought to their notice, of engineers who have proved themselves ready to act in emergency, and have so acted as to induce a warm approval of their actions being passed and recorded in a manner deemed most fitting by the Council.

A Drawing Class has been carried on for a few months during the Session, meeting twice a week.

Eight papers have been read and discussed during the year. Several of the subjects introduced are far from being exhausted, and the discussions point to the desirability of further papers being contributed, in order to deal specially with questions merely touched upon in the discussions, and which yet demand a closer investigation.

A list of the subjects treated, with particulars regarding the papers and discussions, follow.

These papers have all been published, or are in course of publication. The discussions on these are also in hand, and will be issued in due course.

The third volume of Transactions has been late of completion, the last paper having only recently been published. Orders for binding Vol. III. uniform with the two previous volumes are now being executed, the missing or back numbers of papers being made up at a small charge to members who send in their papers for binding in volume form.

The financial condition of the Institute is very satisfactory, as will be seen from the balance-sheet herewith submitted.

The valuation of the property has been placed at a very low figure, in order that the assets may stand the fullest investigation at actual marketable value. The Loan Collection (the Malcolm Campbell Memorial) is not included in the valuation.

The Bristol Channel Centre has made considerable progress during the Session. A special report has been prepared by the honorary local secretary, and will be submitted. The following is a list of the office-bearers :—

BRISTOL CHANNEL CENTRE.

Local President : PROF. A. C. ELLIOT, D.Sc.

Local Vice-President : MR. D. GIBSON.

Representative to General Council : MR. E. JOHN.

Honorary Local Treasurer : MR. C. L. RYDER.

Honorary Local Secretary : MR. GEO. SLOGGETT.

Other centres are in course of formation, and next Session it is expected that at Southampton, one (under the presidency of Mr. C. S. Dusautoy) will be in full operation.

Lord Kelvin presided, and gave his inaugural address at the annual dinner, held in the Holborn Restaurant, on the 2nd of June, 1892. A detailed report has been already published, so that it is not necessary to refer to the proceedings at length here.

Lord and Lady Kelvin visited the premises on the 14th of June, 1892, and have shown great interest in the affairs of the Institute during the Session, and, by manifestations of their warm interest and sympathy, have lightened considerably the voluntary work of the office-bearers and council.

To Dr. Denny also our very hearty thanks are due for the valuable and substantial aid he has given, not only during his year of office as President, but since it expired.

On Friday evening, May 13th, 1892, being a Council meeting night, Mr. Leslie, on behalf of the members of the Institute who are Engineers in the P. and O. Company's service, presented an oil painting of Mr. G. W. Manuel, Past President. The painting was accepted on behalf of the Institute and suitably acknowledged.

The Denny Gold Medal will be awarded for the best paper read during the past session as soon as the arrangements are completed for the judging, by those appointed to consider and report on the subject.

A large Flag with the Crest of the Institute upon it, presented by Messrs. Livett Frank, was hoisted on the pole and unfurled on Friday, 2nd September, 1892.

To Messrs. Caird and Co., Greenock, and the many other friends who have warmly assisted in the up-building of the Institute, by donations and otherwise, our special thanks are given; a list of the contributions towards the premises fund has already been published, but it will be placed on record again and extended to this date to give members an opportunity of seeing the total amount received for this special purpose, and what amount still remains to be contributed, before the premises can be considered quite clear.

The Coal Testing Apparatus has been frequently in use and very interesting evenings have thus been spent in testing various samples of coal forwarded from time to time.

The Fourth Annual Conversazione was held on Friday, December 2nd, 1892, in the Town Hall, Stratford, and the report upon this social gathering will be probably interesting to all.

Before concluding this Report I would take the opportunity of referring to the support and kindly notices and criticisms given of our progress by the press, the Editors of the Technical Journals and many papers published in the Metropolis as well as many papers throughout the country where the interests of Marine Engineering and steamships are upheld, have done much to assist in furthering the objects of the Institute, and our hearty thanks and indebtedness are accordingly proclaimed.

Let us seek to encourage ourselves with the consciousness that our duty lies in the direction of improving, as far as may be in our power, the conditions which we find ruling around us, holding together, and animating one another, in the direction of the highest good, for the benefit of all, maintaining at the same time the true relationships of life, which are allied to proper order and discipline.

MEETINGS HELD

DATE.	NO. OF PAPER	SUBJECT.
1892.		
Feb. 9	34	Discussion on Water-tight Bulkhead Doors. ..
„ 23	33	Discussion on Initial Condensation
March 8	—	Lecture—Nothing: or the Non-Existant ..
April 12	36	The Mining, Manufacture & Use of Asbestos. ..
May 13	—	Presentation of Oil Painting of G. W. Manuel (Past President)
June 2	—	Second Annual Dinner
„ 14	—	Visit of Lord and Lady Kelvin to the Premises
July 12	37	Petroleum Tank Steamers: Their Design and Construction
Sept. 2	—	Unfurling Large New Flag, presented to the Institute by Messrs. Livett Frank.
„ 12	38	Treatment of Boilers
„ 26	—	Discussion
Oct. 3	—	Discussion
„ 10	39	Our Firemen
„ 24	—	Discussion
Nov. 14	40	Steam Pipes.. ..
„ 28	—	Discussion
Dec. 12	{ 41	{ Expansion of Water by Heat
1893.	{ 42	{ Errors of Experts
Jan. 23	43	Training of Young Marine Engineers
„ 30	—	Discussion
Feb. 6	—	Discussion
„ 13	—	Discussion

DURING 1892-3.

AUTHOR.	CHAIRMAN.	WHERE READ.
S. C. SAGE (Member of Council)	J. H. Thomson (Member of Council)	Town Hall, Stratford.
W. H. NORTHCOTT (Vice-President).	Jas. Adamson (Hon. Secretary).	Do. do.
J. McF. GRAY (Vice-President).	Archd. Thomson (Vice-President).	Do. do.
J. A. FISHER (Hon. Member).	F. W. Wymer (Vice-President).	Institute Premises.
— — —	J. H. Thomson (Member of Council).	Institute Premises.
— — —	Lord Kelvin (President).	Holborn Restaurant.
— — —	Do. do.	Institute Premises.
G. H. LITTLE (Hon. Member).	F. W. Wymer (Vice-President).	Gresham College.
— — —	— — —	Institute Premises.
W. W. WILSON (Member of Council)	W. H. Northcott (Vice-President).	Gresham College.
Do. do.	A. W. Robertson (Vice-President).	Institute Premises.
Do. do.	Do. do.	Do. do.
E. O. MURPHY (Member).	L. P. Coubro (Member of Council)	Do. do.
Do. do.	Do. do.	Do. do.
W. J. N. BRETT (Associate Member).	W. J. Craig (Member of Council)	Do. do.
Do. do.	Do. do.	Do. do.
G. W. BUCKWELL (Member).	J. A. Rowe (Member).	Do. do.
J. WILLIAMS (Member).	Do. do.	Do. do.
S. C. SAGE (Member of Council)	Jas. Adamson (Hon. Secretary)	Do. do.
Do. do.	Do. do.	Do. do.
Do. do.	Do. do.	Do. do.
Do. do.	Do. do.	Do. do.

The CHAIRMAN : The Report from Mr. Leslie (Honorary Treasurer), will now be given to the meeting.

The HONORARY TREASURER : I have much pleasure in presenting the balance sheet for the past year. I think you have copies before you and it is therefore unnecessary for me to read the various items. You can see for yourselves how things stand. The original balance sheet is here if any member wishes to see it. I think you will agree that the affairs of the Institute financially are in a very satisfactory state considered with the result of the past year's work. We still owe a little money to our bankers on account of our premises. We could cover that in a very short time if we wished, but for various reasons the Council do not think it expedient at the present time to do so ; and of course if any of the members are anxious to ease this debt gently there is now a good opportunity. The building appears in the balance sheet at a price, and I think every one will agree that the substance of the building as it stands is well worth the money, but there is still something left to be done. In my estimation I certainly think that if we want the Institute to flourish and to make it attractive to members we must make some alteration in the room in which we are now assembled and in the room adjoining, and we must also make some additions. We want in the first place a good lecture room where young men can attend in numbers on the occasion of the reading of papers or discussions, and where they can also come on other evenings for the purpose of reading or writing. Those members who wish to enjoy themselves at billiards also require better accommodation. The only thing that is wanted to enable us to carry out these desirable objects is a little more money, and that is a matter in regard to which I do not think we shall have much trouble. Mr. Adamson has given us some very good encouragement to-night, and I only hope that they are the beginnings of what is to follow. I feel that I cannot do enough for the Institute. I know I do not do all or as much as I should wish, but business and other calls upon my time have prevented me doing more. It has been a great pleasure to me, as I know it has been a great pleasure to Mr. Adamson, to do all we can for the Institute and those around us, and when I speak of those around us I include the shipowners, for I feel we are doing them as much good as anybody, and I hope that they will be able to follow with their favours later on. I hope the balance sheet will meet with your applause, and I hope it will be approved.

INSTITUTE OF MARINE ENGINEERS.

SESSION 1892-3.

BALANCE SHEET 31ST, JANUARY 1893.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
To Loan Account	168	13	4	By Cash at Bank	327	2	3
„ Sundry Creditors... ..	119	10	5	„ Cash in Hand	53	17	0
„ Denny Gold Medal Fund, including Interest to date	261	13	4	„ Freehold of Institute Buildings, 58, Romford Road	1050	0	0
„ Revenue Account—				„ Furniture, &c., at Institute (less depre- ciation)	226	3	8
Balance 1st February, 1892	984	13	1½	„ Additions to Institute Buildings (less Depreciation)	74	17	2½
Less Transferred to Denny Gold Medal Fund ..	250	0	0				
	734	13	1½				
Add Balance to 31st Jan., 1893	447	9	11				
	1182	3	0½				
	£1732	0	1½		£1732	0	1½

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

WALTER W. FEAST & Co.,

9th March, 1893

Chartered Accountants, St. George's House, Eastcheap, London, E.C.

REVENUE ACCOUNT.—1st February, 1892, to 31st January, 1893.

To General Expenses:—	£	s.	d.	£	s.	d.
„ Stamps, Telegrams, Stationery, Clerical Work, Auditors, Insurance, Caretaker, &c. . .				188	14	5
„ Rates, Taxes, Gas, &c.				32	13	4
„ Expenses Bristol Channel Centre				1	1	0
„ Expenses Reading Room				7	16	2
„ Papers Read at Meetings, in- cluding Printing and Cost of Halls				323	5	0
„ Transactions Section, less Sale of Papers, &c.				8	18	11
„ Depreciation :						
On Furniture	11	18	1			
On Additions to Institute- Building	8	6	4			
				20	4	5
„ Interest :—						
On Loan	16	5	8			
On Denny Gold Medal Fund	11	13	4			
				27	19	0
„ Advertising				25	7	0
„ Balance carried to Balance Sheet				447	9	11
				£1083	9	2

By Entrance Fees :—				£	s.	d.	£	s.	d.
Members	..	..	..	88	0	0			
Associate Members	..	..	..	10	0	0			
Associates	..	..	..	9	5	0			
Graduates	..	..	..	2	0	0			
				<hr/>			109	5	0
„ Subscriptions :—									
Members	..	..	..	457	4	0			
Associate Members	..	..	..	21	0	0			
Associates	..	..	..	17	5	6			
Graduates	..	..	..	1	5	0			
				<hr/>			496	14	6
„ General Revenue :—									
Sale of Bye-laws &c.			..				1	13	0
„ Donations :—									
Building Fund	..	..	..	443	13	0			
Library Fund	..	..	..	6	5	8			
Honorary Members	..	..	..	25	18	0			
				<hr/>			475	16	8

We have examined and compared the Cash Books and Vouchers kept by the Honorary Treasurer, and find them to agree with the cash balance.

JOHN A. ROWE,
FORTESCUE FLANNERY, } *Auditors.*
R. LESLIE, *Honorary Treasurer.*

The CHAIRMAN : The next business on the agenda is the Bristol Channel Centre.

The HONORARY SECRETARY : I am sorry that our honorary local secretary at Cardiff has been unable to get his report forward in time for this meeting, and in making that intimation I would also say that a good deal of latitude ought to be allowed him. Mr. Sloggett is the present honorary secretary at Cardiff, but he has only recently come into office, and has had a great deal to do in bringing various matters that had fallen into arrear up to date. I know he has been working very hard indeed since his appointment. His report will be published along with the report of our meeting to-night, and the whole will, I hope, be in the hands of members shortly. I may say that they had a very successful dinner at Cardiff in September, at which I was present, along with Mr. Coubro, to represent the Institute, and I must say that everything seemed to be carried out exceedingly well. It was after the dinner that Mr. Sloggett was appointed, and as he has to embody an account of the dinner in his report, that makes his task all the more difficult.

The CHAIRMAN : I have now the pleasure of calling upon Mr. J. R. Ruthven to address the meeting on the subject of local centres.

Mr. J. R. RUTHVEN : The subject of local centres has occupied the attention of every Council of this Institute from the beginning. At the present moment the only local centre is the Bristol Channel centre, which is carried out and supported by a number of eminent and energetic members of the profession. It is most desirable to found other centres, but the great difficulty is to secure the assistance of a sufficient number of gentlemen able and willing to work together for the purpose. We have members in a great number of ports, and it is to be wished that corresponding members should be elected, and in time this would lead to the establishment of local centres. Suggestions are invited as to the extension of the usefulness of the Institute and the forming of centres in the various ports. It is believed that within the next year there will be at least two new local centres in working order, one at Bombay and one at Southampton.

The CHAIRMAN : The proceedings will now be adjourned for a short time, to allow of ventilation in this room, and a service of tea and coffee in the room above.

At this stage of the proceedings, the meeting was adjourned for fifteen minutes, after which, members re-assembled and the meeting was resumed as follows :—

Mr. EDWARD B. CAIRD : I have much pleasure in moving that the annual report and statement of accounts be received and adopted. I think they will be regarded by the members generally as very satisfactory. They show that the office bearers and members of the Council have done a great deal of work during the year, and that they have done it well. On the whole the condition of the Institute seems very satisfactory.

Mr. M. B. TYLER seconded the motion, which was put and carried *mem con.*

The CHAIRMAN : I will now ask the scrutineers, Messrs. R. Adam and Tyler, to present their report.

Mr. TYLER : We beg to report that the following is the result of our examination of the ballot papers opened to-night :—

President—Mr. W. H. WHITE, C.B.

Hon. Secretary—Mr. JAMES ADAMSON.

Hon. Treasurer—Mr. R. LESLIE.

Hon. Minute Secretary—Mr. CHARLES NEWBY.

Members of the Council.

Mr. J. BLELLOCH.	Mr. J. G. HAWTHORN.	Mr. A.W. ROBERTSON.
„ J. D. CHURCHILL.	„ J. NICOLL.	„ F.W. SHOREY.
„ L. P. COUBRO.	„ J. W. RICHARDSON.	„ W. WHITE.

We have very much pleasure in stating that the whole of the principal officers were re-elected almost unanimously. With regard to the first four names on the list of members of Council, there was only a difference of three votes, so that they have been re-elected by the members with practical unanimity. With regard to some of the others, there was some very close voting.

The CHAIRMAN : On the subject of the election of office bearers, I have very little to say, except that I think their past services afford a sufficient guarantee that they are the right men in the right place. It now becomes our very pleasing duty to accord a vote of thanks to our retiring President, and I have much pleasure in calling upon Mr. A. W. Robertson.

Mr. A. W. ROBERTSON : I feel very highly honoured, however much I feel my inability, at being called upon to propose a vote of thanks to Lord Kelvin, the retiring President of this Institute, whose year of office is now at an end. In doing so I feel I give joint expression by saying, that the members of this Institute feel deeply indebted to Lord Kelvin for his kindness in having accepted office as President, for his assistance and sympathy during the year, and for the honour he has conferred by associating himself with us,—an association that will not only increase the stamp of respect for the Institute, but I think we are justified in

saying, *courting this feeling*, command his sympathy and no doubt his assistance in years to come. Considering this Institute was formed for the advance of scientific knowledge, and its attainment the wish of its members, are we not right in saying that in Lord Kelvin we have had a man truly fit to be its president, whose darling theme is the advance of Science, and who ranks at the present day as one of the greatest factors in its development? We will ever feel proud, and grateful, at having had him as our president in 1892-1893. And I am sure he will consider us grateful if we, as an Institute, try and copy his example in the line of energy, study, and labour, that has brought him such distinction. It would be invidious if I were to dilate on Lord Kelvin's abilities, which are well known to all of us, and I think it would be ungracious on my part if, in giving voice to the feeling of this meeting, I were to go into details of what he has done in the past. I will only say, therefore, that I have much pleasure in proposing that we accord a very hearty vote of thanks to Lord Kelvin, for the kindness, consideration, assistance, and sympathy he has extended to this Institute during his Presidential Year of office.

MR. J. R. RUTHVEN: I have very much pleasure in seconding Mr. Robertson's proposition.

THE CHAIRMAN: It is necessary and very desirable that we should also express our thanks to the office bearers and members of Council, and I ask Mr. Blake to propose a vote of thanks to these gentlemen.

MR. J. BLAKE: I have been asked to perform a very pleasing and important duty, and it gives me great pleasure to apply myself briefly to it. I do not know whether or not I should feel quite in my element here to-night. I presume that most of you gentlemen present belong to the profession and practice of marine engineering. I, unfortunately, at present occupy a unique position in belonging to what is sometimes termed one of the decaying industries of the country—the sugar refining—but whether that be so or not, our wish, our aim, our desires are that we should improve and progress in our profession, and I am glad to be still associated with marine engineers, as a member of this Institute. I exceedingly regret that through lack of opportunities I have not been able to avail myself of the very excellent advantages which the Institute offers, and although I watch the transactions with a considerable amount of interest and care, I am very anxious, and I will do my very best in future, to become more closely associated with the gentlemen present, because from the little interviews I have had, I find there is a great amount of enthusiasm in the

work of the Institute, and no good work has ever been accomplished in this world without enthusiasm. I do not know that I can speak very strongly of the individual office bearers and members of the Council. I am a comparative stranger here, and not having come into contact with all, I am not in a position to say much of the individual exertions of the gentlemen to whom I ask you to accord your thanks. The report which has been read to-night seems to me to be very satisfactory indeed. You have made considerable progress, and behind all that, there appears to be an administrative ability on the part of your office bearers and Council which certainly reflects very great credit upon them. The Institute, it seems to me, stands in a very high state of efficiency at the present moment. I must express my pleasure at having been invited to attend here to-night, and at having been afforded the opportunity of proposing a hearty vote of thanks to the office bearers and the members of the Council who have worked so very hard in the year that has passed.

MR. P. BARBOUR : I have much pleasure in seconding that motion.

MR. NEWALL : I have great pleasure in proposing a vote of thanks to Mr. J. F. Flannery and Mr. J. A. Rowe for the manner in which they have undertaken the duties of auditors for the past year's accounts, duties which, although irksome, are very important and responsible.

MR. TYLER : I have much pleasure in seconding that proposition, as I am sure the auditors deserve our hearty thanks for devoting themselves to the duty.

THE CHAIRMAN : I will now call upon Mr. John Tait to say a few words.

MR. TAIT : Well, Mr. Chairman, as my memory does not seem so good when I stand up to speak before an audience, I thought I would just jot down a few thoughts, and with your permission I will read them. There is a vast deal of work done in connection with this Institute, and I express not only the mind of the Office-bearers and Council and my own mind on the subject, but I think I may say the mind of the whole of the members when I say we must take immediate steps to increase our accommodation, and add to the breadth of our operations—extension of premises. The reports which we have heard read to us are more than satisfactory, and our own senses reveal to us that these premises require to be dealt with as referred to in the honorary secretary's report, in order that we may have more breathing space—we want ventilation ; we have not air ! open the walls and let us have some from the outside brought in, and having got it in, keep it by bricks and

mortar from getting out again. These premises are well situated, they are our own, which is a great comfort, and although further from the railway station than we would like, still being our own landlord and freeholder, all our improvements and additions are for the permanent good of the whole Institute. We see the amount of money which has been contributed already to the Premises Fund, and it seems to me that this proves very well how much confidence is reposed in those who have been guiding the "reins of State." Such being the case, confidence should beget confidence, and what has been already done by the comparative few, should be done by the many. I am pleased to hear that two cheques for the extension of premises have been received within the last day or two for the object of providing better accommodation, and before I sit down, I would just like to say I hope cheques will follow thickly as the many fallen leaves of autumn.

Mr. MELSOM: I beg to propose that before we start building we pay off some of our old liabilities, and one of our liabilities which I should wish to put specially forward is that relating to the billiard table. Mr. Shorey has been very kind in getting this table for us, but at the rate we are paying for it, by the takings from those using it, four years will elapse before he gets his money back.

Mr. J. NICOLL: I have much pleasure in seconding that proposition.

The CHAIRMAN: I was hardly prepared for a discussion as to whether we should pay off the cost of the billiard table. I really thought that that was a matter which came under the management of the Executive Council. It is scarcely a matter to be put to a meeting of this kind. However, I will put it to you. The proposition, as I understand it is: that before we lay out any more money we should repay Mr. Shorey for the billiard table, which he kindly supplied us with.

Mr. CAIRD: Mr. Chairman, I beg to move as an amendment that this matter be left in the hands of the Executive Committee.

Mr. TYLER: I second that.

The HONORARY SECRETARY: I apprehend that the motion which we have already carried, adopting the reports as read, covers a recommendation as to the billiard table, and I think it would not be wise to go beyond it. I think it is unnecessary to bring the matter before the meeting in this form, and press the outlay immediately, in preference to the recommendation in the report.

The CHAIRMAN: Under those circumstances I presume you will allow the subject to drop.

Mr. ANDERSON : Mr. Chairman, I do not know if I would be in order in doing so, but I desire to make a proposition. I would propose that all the members should give another sovereign each, so that instead of having the balance on the wrong side of the account, we may have it on the right side. Will any one second ?

Mr. J. TAIT : Yes, I second that.

The CHAIRMAN : I shall be very pleased to give the suggestion my hearty co-operation, but it will, I think, be a little difficult to get an expression of opinion upon it from this meeting. People have not too many sovereigns now-a-days. I was also going to observe with regard to what I have heard about getting assistance from outside, that we must not forget that there is and has been a very serious depression during the last two or three years. Some of our big companies, which I am sure would not object to assist us, feel that under the terrible depression at present prevailing they must not attempt to give money away. I look forward to the time when this depression will have cleared off, and when shareholders in these companies will be receiving dividends which they are not receiving now. We can then approach some of our rich friends, and when that time arrives we shall not want for money for this institution. But I would not attempt to solicit any of our friends, or ask for money under the present condition of trade. It is not the proper time to do it, and although we do owe a little money we are perfectly self-supporting. The bank respects you very much more when you owe them, with good security. We are perfectly right and safe, and if we are allowed to go on as we are going, we shall be able to clear all this off in very good time. I think the financial affairs of the Institute have made wonderfully good progress. I have not the slightest fear about the finances. I should very much like to see the ideas of Mr. Anderson and Mr. Tait carried out, but I do not exactly like to ask for an expression of opinion on such a motion from every individual member here this evening. I would rather that a circular should be sent round and let each member speak for himself.

Mr. TAIT : I seconded the motion because I thought that this proposed contribution was to be voluntary. It was not at all my idea that each member should be compelled to give a sovereign. I say it should be voluntary. Let all the members know that money is really wanted. I believe that many do not know that we want money for increasing our accommodation.

Mr. F. W. SHOREY : I should like to move an amendment to the proposition that has been brought forward. Considering the depression that exists, from which, as we all

know, many engineers are also sufferers, I do not think we should ask the members so constantly for subscriptions. They have done a good deal, and are doubtless inclined to do more, but I think it would be far better if we could get each member to do his best to increase the membership. That would be the best way of increasing our finances ; it will deter others from joining if you are asking for donations frequently. Suppose you do ask for subscriptions, one member, perhaps, can well afford to put down £5, but another will feel rather hurt because he is not in a position to do the same ; he will not like to put down 5s. I say we should not come upon the members for money too frequently. We have done very well, and if we go along as we have been going, and each member does his best to increase the membership by asking his friends to join, I think that would be by far the best way of getting our debts cleared off. We are not so anxious, although, perhaps, I am wrong in saying so, to clear off this debt. If we felt so disposed we could pay it off now, and I do not think we should press the members. I move, as an amendment, " That the members should not be asked to contribute so as to put the balance on the other side, but that they should be urged to increase the membership."

Mr. RUTHVEN : I second that. I think there is one large class of gentlemen who might be approached, and it is a class which, in my opinion, is more indebted to marine engineers than any others. I refer to the underwriters. They certainly ought to contribute towards such an Institute as this, especially at a time when it is proposed that meritorious conduct at sea should be recognised in a more tangible form than at present. I propose that the underwriters should be approached, seeing that they are greatly indebted to marine engineers for their services at sea, rendered ungrudgingly and unselfishly, too often without the slightest recognition either in word or deed.

Mr. ANDERSON : I object to go begging from underwriters or anyone outside ; I would prefer that the Institute should be a self supporting institution and not be under any obligation to anybody.

The CHAIRMAN : Well, we are getting various propositions and amendments and I confess I am becoming somewhat mixed. I think the idea which this gentleman (Mr. Anderson) has brought forward a very laudable one, but I have expressed my views why I think it should not be put to the meeting. The other idea about the underwriters is a very commendable one, and I think that those gentlemen ought to be attended to. I believe they would respond very well. These are all questions for us to consider—as to

the way they ought to be managed and arranged for. I am delighted to have had all these different suggestions. I think the Council will profit by them and take them into their serious consideration with the view of ascertaining which is the best way, under the present circumstances, of raising the cash balance at the bank, but if you will allow me to say so, I do not think that any of these propositions should be put to the meeting. I think we are all agreed that these ideas are all good in their way. Just allow them to be considered and dealt with by the executive committee of the Institute.

Mr. CLEGHORN: At the present time we are supposed to be making "general remarks," and I take it that the proposals and amendments which have been brought forward are in the nature of hints to the Council—matters for them to consider. I do not think that all these things should be brought forward at a semi-public meeting, and I would suggest that we should have a suggestion book, so that if any member has any suggestion to offer he can write it down in this book, and any other members who are of the same way of thinking can put their remarks down also.

The CHAIRMAN: I think that is likewise a very commendable idea.

Mr. R. LESLIE: I beg to propose that we invite a few expressions of opinion from our Honorary Secretary.

The HONORARY SECRETARY: It becomes my duty from this broad hint to respond to the vote of thanks that has been passed to-night to the retiring Office bearers and members of the Council, and I beg to thank you in the name of the Council for the kind way in which you received the proposition that was put before you. At a time like this when we have finished a year's work it is very pleasant to find that in the opinion of the members we have done our duty. It is also very pleasant to listen to the expressions which have been given voice to at such a meeting as this. I am sure I am only expressing the feeling of every member of the Council and every Office bearer when I say that we are exceedingly pleased and gratified at the proceedings here to-night. There are one or two matters I would like to refer to. During the past year there has been a great deal of work, and during the year to come there may be a great deal more. I think it is right I should say this to-night because it prepares the members of the Council, both new and old, to put forth their best energies for the fray that lies before them. I think that every member of the Council ought, when he accepts office, to make up his mind to work as diligently as he possibly can. I do not think I could have done more than I have done consistent with

other duties, and I think that that should be the view which every Office bearer and member of the Council ought to be able to take at the end of his year of office. I think that every member should say to himself "Have I done all I should and might have done in the past ; if not, then I am determined that I will do all in the future that lies in my power, so that I may not have my conscience reproach me with not having done my duty." With regard to our debt to the bank, of course, there are business reasons why we prefer to keep that account open. We do not desire to close it. No doubt many members may think that we might deal with it by using for the purpose some of the money which appears as "cash at bank" or cash in hand, but we have been getting a good deal of money in lately and that is probably the reason why the amount stands so high. One point which is specially referred to in the circular calling the meeting to-night is to the effect that it is proposed to make the payment of the annual subscriptions due in January of each year instead of on the anniversary of election in each case, as has been the rule hitherto. This in effect really carries us back to our by-laws. From motives of convenience it was considered better in the early days of the Institute that the subscription should be payable on the anniversary of election in each case, as, in my enthusiasm, I thought that the anniversary of his election as a member of the Institute would be regarded by every member as such a red-letter day that he would be only too anxious to pay his subscription on that very day. Unfortunately it is not looked upon as a red-letter day by every member, as, I hold, it should have been, and that is the reason why we have to take a retrograde step and return to the by-laws. I would also urge the members generally to call the Institute by its right name. I have heard it spoken of to-night as the Marine Engineers' Institute. That is not its correct title: it is the Institute of Marine Engineers. It may seem a very small point, but I think we ought to stick to and uphold our name. With regard to underwriters, I had great hopes that we should have had a representative of the underwriters present to-night ; and I dare say that Mr. Ruthven, who brought that matter forward, thought it a pity that the underwriters' side of the question was not put before us. If Mr. Aukland had been here to-night to present his views to us, I am sure that even Mr. Anderson would not have objected to hearing what he may have had to say. We all know that Mr. Aukland has strong leanings towards the Institute, and he has done us a lot of good in his quiet way. The retiring Council have left a legacy of work to be carried

forward by the new Council. There are one or two problems to be solved. One of them relates to the conditions of our firemen, and another is regarding the grades of engineers. As convener of the Special Committee I have yet to submit the report of that committee, which was appointed to consider Mr. Mudd's suggestion with reference to the granting of certificates to qualified firemen. I may just say that we have had a very large number of replies to the circular sent out, and of the letters that have come to hand I think there are only five dissentients from the proposition that the present system of discharges granted to firemen is objectionable and injurious in the extreme. There is a very great consensus of opinion that the present system of discharging firemen is open to many objections, and that the system of continuous discharges would be a great improvement. Then with regard to engineers' certificates there is a proposal to come before the Council that there should be a third grade or third class certificate for engineers, and that the Board of Trade should be memorialised on the subject. With respect to Mr. Cleg-horn's proposition as to a suggestion book, I know I express the feeling of the whole of the Council when I say that they would be only too pleased at any time to receive the suggestions of members. In fact, the Council have courted such. We have had many suggestions from different members, and these have been considered from time to time. Although we have had no book for the purpose, we have always been most glad to receive any suggestions. Before sitting down I would again tender you personally, and on behalf of the Council, our very hearty acknowledgments of the manner in which you have accorded them the vote of thanks.

Mr. J. H. THOMSON : I propose a hearty vote of thanks to the Chairman for his kindness in taking the chair to-night. Mr. Archibald Thomson has taken a deep interest in the welfare of the Institute from its earliest days.

Mr. SHOREY : I have great pleasure in seconding that.

The CHAIRMAN : Well, gentlemen, I am sure I feel very flattered. I do not at all admit that I have been of any great service to this Institute, and I am only sorry that I have not been able to do more for it. It is some distance to come from where I live, and I cannot always attend, but when I do come I am always most cordially welcomed by the members of the Council, whether I am on it or not, and perhaps I have been a little assistance to them now and again. I am sure I shall always be very pleased indeed to do my utmost for the Institution. I feel the greatest interest in it, and I am very proud to be a member.

FOURTH ANNUAL CONVERSAZIONE.

The following Report of the Conversazione is taken from one of the local papers.

INSTITUTE OF MARINE ENGINEERS.

ANNUAL CONVERSAZIONE.

One of the most delightful and instructive evenings held at the Town Hall, Stratford, is the annual conversazione arranged by the Institute of Marine Engineers, and it is not to be wondered at that very few tickets remained undisposed of for Friday evening last, December 2nd, while those ladies and gentlemen present could not fail to be pleased with the entertainment provided. The interior of the hall was fitted in a very effective manner. At the entrance, the new and handsome banner, recently presented to the Institute, bearing the crest and the motto, *Nec remis nec velis*, was hung so as to form a screen, and added considerably to the inviting aspect. Round the walls numerous flags and streamers were suspended, and the stage end of the hall was tastefully embellished with foliage plants and fairy lamps, producing a charming effect. Of course, at such a gathering, the instructive element was prominent; in the window recesses and arranged on tables were many specimens of the skilled mechanic's work, while patents in connection with marine engineering, especially of the lighter kind, were exhibited in abundance. Numbers of curiosities also attracted attention, and enabled the visitors to contrast the old models with those of later date. Conspicuous among these was an engraving of the *Seahorse*, one of the early ships to which steam was supplied as a propelling power, and the *Industry*, of even earlier date, which was shown in close proximity to photographs of the *City of Paris* and the *Scot*, specimens of the latest design of floating palaces which now plough the ocean. A few yards from these interesting subjects Mr. W. Colsell exhibited the tail of a live gold-fish, and by means of a very powerful microscope, the circulation of the blood through the many hundred arteries and veins was distinctly visible. In an ante-room some specimens of scientific research were on view. Mr. G. W. Newall showed an invention for dispensing with bolts in the doors of vessels containing steam or liquid under pressure; also a model surface condenser, by Mr. C. H. Gray, of Silvertown. The door is secured by means of a patent lever which works metal teeth fitted to corresponding recesses, and by this means the door of any vessel can be manipulated very quickly. The practical utility of the invention may be gathered from the fact that at the Silvertown India-rubber

Works the process has been applied to doors of 6ft. and 4ft. diameter, photos of which were shown, and after continuous use for twelve months the india-rubber ring on the joint is as good as when it was first put on. There were also in this room, one of Gray's patent double-action pumps, and Newall's patent feathering screw propeller; an apparatus for cleaning boiler tubes, and one of Buck and Hickman's 3½ in. centre lathes, a beautifully-finished machine. In the large hall photographs of steamships were hung, among them being the *Blenheim*, Government cruiser; the *Clacton Belle*, passenger boat, and the *Himalaya* and *City of Paris*, with many others too numerous to mention. Portraits of James Watt and Malcolm Campbell were also conspicuous, and models of ships, and models and samples of the many and varied means of lubrication, packing, &c. A small model steam engine and boiler by Mr. J. A. Thomson, also attracted attention. Amongst the other exhibits were samples of packing from Messrs. Lindsay (Glasgow), the Beldam Packing Company (London), the North British Rubber Company (Edinburgh), Melsom and Griffin (London), Stearne and Co. (London); samples of oils, arranged in artistic style; anti-fouling compositions, fire extinguishers, &c., from Messrs. W. B. Dick and Co. (London); specialities in boiler fittings, asbestos-packed valves, &c., from Messrs. Dewrance (London); a model feed-water filter, from the Glasgow Patents Company; automatic lubricator for oiling machinery without waste, from Messrs. Thompson (London); a fine group of machinery and samples of specialities, also a fresh water condenser and pump, from Messrs Caird and Rayner (London); a sample copper steam pipe, showing Pope's patent flanges and Denny's patent bands for minimising danger should a steam pipe burst, from Denny and Co. (Dunbarton); the Denny and Gourlay patent naphtha stoves for heating, suitable for tradesmen, in place of having to use coal fire and lighting; and many other interesting exhibits. The time announced for the opening was half-past six, and the reception committee were early in attendance to welcome the numerous guests. Tea, coffee, and light refreshments were served in the lower hall, and opportunity was afforded, between the selections of excellent music by Mr. T. Bidgood's band, for conversation and an inspection of the exhibits. At seven o'clock a grand concert took place in the large hall, and about 480 ladies and gentlemen were present, among these being, Mr. Asplan Beldam (past president of the Institute), Mr. Robert Adam (chief engineer, British India Company), Mr. C. S. Du Sautoy (Southampton), Alderman G. W. Kidd (Mayor of West Ham), Mr. H. M. Rait (London), Mr. A. W. Robertson

(London), Mr. Archibald Thompson (London), and Mr. John Macfarlane Gray, vice-presidents of the Institute; Messrs. J. Blelloch, J. D. Churchill, L. P. Coubro, W. J. Craig, J. R. Ruthven, J. H. Thomson, W. White, G. Wiltshire, and W. W. Wilson, members of the council; Mr. Robert Leslie, hon. treasurer; Mr. C. G. Newby, hon. minute secretary; and Mr. James Adamson, hon. secretary; and many other well-known members and friends of the Institute. The concert opened with an overture, "Espoir d' Alsace," performed in excellent style by the orchestral band. Mr. W. A. Hamilton sang "Mary of Argyle" and "An evening song," which was loudly applauded, while Madame Rich was deservedly encored for very fine renderings of "Angus Macdonald" and "Killarney;" this lady also sang in a duet, "The sailor sighs," with Mr. W. A. Hamilton. "Hunting the fox in the morning" and "The de'il's awa'" were given by Mr. J. L. Haddon, who, in conjunction with Mr. W. J. Hamilton, sang a humorous duet, "The buttercup." Two capital cornet solos were played by Major J. H. Taylor, and the Bijou mandoline band gave three selections, which were much appreciated. Between the first and second parts there was an interval for refreshments and conversation, and at the conclusion of the concert the hall was cleared for dancing. Mr. T. Bidgood's band supplied the music for sixteen dances, which included a special arrangement of quadrilles (the "Marine Engineers" quadrilles). Mr. George Wiltshire efficiently acted as M.C., being assisted by Messrs. John Nicoll and William White. The dancing was kept up with much spirit until the early hours. The whole of the arrangements were ably carried out by a reception committee, consisting of Messrs. J. Adamson, D. Brown, L. P. Coubro, A. C. Campbell, J. D. Churchill, Capt. W. E. Hutchinson, Alderman G. W. Kidd, R. Leslie, J. McLachlan, T. G. Martin, C. L. E. Melsom, C. G. Newby, G. W. Newall, J. Nicoll, A. W. Robertson, W. I. Taylor, J. H. Thomson, G. Wiltshire, and W. J. Craig (convener).

The latest donations to the property of the institute are a very fine large oil painting of the North Sea fishing fleet in a gale, presented by Mr. Peter Denny, L.L.D. (past president) An enlarged photograph (framed) of the late Malcolm Campbell, presented by Mrs. Campbell; relics from the Crimea war, a Russian gun and bayonet, picked off the field of Inkerman the day after the battle; assegais, bow, arrows, sword, and shoulder strap, with pouch containing the day's provisions, presented by Mr. John Stewart (member); a case of barnacles, taken from the hull of a steamer trading on the coast of India after 13 months running without dry-docking, presented by Mr. Riddle (member).

INSTITUTE OF MARINE ENGINEERS.

BRISTOL CHANNEL CENTRE.

SESSION 1892-3.

ANNUAL REPORT.

The Session opened in a manner that betokened a prosperous and successful future. Mr. George Fownes had been newly appointed Honorary Local Secretary, and he spared no efforts to revive and maintain the interest in the Meetings of the Members. Some of the gatherings and discussions that took place were of a very satisfactory character, and the number of members showed signs of increasing. It was, therefore, with the profoundest regret and sorrow that the members received the news of the sudden death of Mr. Fownes on the 3rd June, 1892. A meeting was at once held, and a vote of sympathy passed and conveyed to Mrs. Fownes. The funeral was attended by many members, and a wreath provided in the name of the Bristol Channel Centre was placed on the grave. Apart from his official capacity as Secretary, Mr. Fownes had gained the respect and friendship of all with whom he came in contact.

The affairs of the Centre naturally received a considerable check, and very little business was done until September, when arrangements had to be made for the annual dinner. A committee meeting was held, Dr. Elliott presiding, and Messrs. Field and Davison were appointed Joint Hon. Secretaries, and Mr. Henry Cambridge Hon. Treasurer of the Dinner Committee.

THE SECOND ANNUAL DINNER of the Bristol Channel Centre was held at the Royal Hotel, Cardiff, on Saturday, the 8th October, 1892. The attendance was a large one. Professor Arch. C. Elliott, D. Sc. (President of the Bristol Channel Centre), occupied the chair, and Mr. David Gibson (Vice-president) the vice-chair. They were supported by the Mayor of Cardiff (Mr. Alderman Thomas Rees), Mr.

James Adamson (Honorary Secretary Institute of Marine Engineers), Captain Chalmers (Principal Officer for S. Wales, Board of Trade), Captain Pomeroy, (Dockmaster, Cardiff), Mr. Dobson (Manager, Central Engineering Company, Ltd., Cardiff), Mr. R. J. Field, Cardiff; Mr. Ivor James (Registrar, South Wales University College); Mr. H. Hooper (Manager, Messrs. Hill's Dry Dock and Engineering Co., Ltd., Cardiff); Mr. Jeffrey (Messrs. Elliott and Jeffrey, Engineers, Cardiff); Mr. H. Lace (Messrs. Lace and Sons, Engineers). Mr. Sydney F. Walker (Cardiff Electrical Works); Mr. L. P. Coubro (London); Mr. Axford (London); Mr. Hardy, Mr. D. Radcliffe, Mr. G. Sloggett, Mr. Laurie (Messrs. Laurie and Co.), Mr. Williamson (Newport), and many others.

After dinner the Secretary announced that letters expressing regret and inability to attend the gathering had been received from Lord Kelvin (President of the Institute), Dr. Denny (Past-President), Sir William Thomas Lewis, Sir Edward Reed, M.P., Colonel Guthrie, Councillor Thomas Morel, Mr. Archibald Hood, Mr. John Gunn, and others. A telegram was received from the Parent Institute, London, wishing the Bristol Channel Centre every success.

The Chairman then submitted the loyal toasts, which were followed by the patriotic toast, proposed by the Vice-Chairman, and responded to by Captain Young, R.N.R., of the Board of Trade.

CAPTAIN CHALMERS (Principal Officer, Board of Trade for South Wales), in proposing the toast of "The Institute of Marine Engineers," said:—

"Mr. Chairman, Mr. Vice-Chairman and gentlemen, I have great pleasure in rising to propose the toast that has been confided to my feeble lips this evening. It is 'The Institute of Marine Engineers.' Personally, I may say I am proud to have the privilege of proposing this toast, embodying as it does our highest esteem and kindest feelings for a body of men, who, however eminent individually, have yet rendered their great talents and opportunities of infinitely more service to the world at large by banding themselves together as a collective body in the promotion of the interests of science, and a science too, which, perhaps more than any other, makes for the progress and enlightenment of the world. The fact is specially worthy of remark, and it is simply one more bright example of that splendid energy and earnestness which has ever distinguished the English-speaking race wherever it has gone throughout the world, carrying with it the same indomitable spirit of commercial and scientific enterprise which has made our country's name so conspicuous in the pages of history.

"Of the history of marine engineering as a science it is

not necessary to speak, as it is familiar to all of us, extending as it does virtually throughout the past 50 or 60 years; but during this time the achievements recorded and the progress made have been most remarkable. To all of us such achievements must appear worthy of admiration, but to some they must come home with greater force, enhancing as they do incidentally, the value of one's own particular trade or profession. For instance, trained as I have been as a navigator, and to some extent as a geographer I can but record my deepest admiration for the progress made in the science of which the members of this Institute are such able exponents, which provides for a more ready and effective communication between shore and shore. In the achievement of such a record the influence of your Society is clearly to be traced, fostering as it does in the minds of its members that spirit of keen research and interchange of ideas, without which no true progress in science can be accomplished. I am well aware, also, that among your members you number several of my own colleagues in the Government Department to which I have the honour to belong, so that side by side with that spirit of keen research you also have that spirit of true caution which is ever necessary to make the advance of science a sure one. A great feature in your Society, also, is the diversity of gifts and callings in its members, some being able exponents of theory, others of practice; while there are also those who are yet labourers in the field, while each from the other has a great deal to learn. This you bring about by your admirable system of discussions, so that you really benefit from being what the world might call a 'mixed lot.' I am reminded by this expression of a story, in which a very good moral is contained, of two gentlemen meeting at a social gathering, when one (whose father was an eminent and wealthy fashioner of garments) remarked, as he looked around the room, 'I say, what a mixed lot there is here to-night.' To which the other retorted, 'Well, hang it all, man, we can't all be tailors.' So the moral will apply that each one in such a society as yours has his just place. All cannot be men of genius advanced in scientific attainments, but all can and do assist materially, each in his own sphere, to advance the true interests of a science which tends to the enlightenment of the world. Your record in the past, Mr. Chairman, has been a bright one, and there is no reason why we should not look forward to a still brighter one in the future. Recognising then to the full the services your Society has rendered in the past, and looking forward with eager hope to the strides that will surely mark your path in the future; I have great pleasure in proposing this toast, and I ask that it shall be received as it deserves, with a

bumper, a brimful and loving bumper to 'The Institute of Marine Engineers.' "

MR. JAMES ADAMSON (Honorary Secretary of the Institute of Marine Engineers) rose to respond amid the applause with which the toast and the speech of the proposer was greeted, and said it gave him very great pleasure to visit Cardiff, and that the pleasure was enhanced by the occasion which called it forth. On behalf of the Office Bearers, and Council, Mr. Coubro and he had come to bear living testimony to the warm wishes towards, and the keen interest taken in, the Bristol Channel centre by the main centre in London, and he was glad of the opportunity afforded of personally endorsing the wired message received that evening from London by the Dinner Committee, he was also glad to shake hands with many members whom he had met on a similar occasion the previous year.

Referring to the stirring and hearty speech made by the Proposer of the toast of the Institute of Marine Engineers, he continued : Captain Chalmers has made mention of feeble lips, but after what he has said and how he has said it, I hardly think we can justify any adjective not the very antipodes of feeble to describe his language. The sentiments to which he has so eloquently given utterance demand our utmost attention, so that we aim not to fall short of the intentions, aspirations and success with which we are credited, here I am reminded—encouraged by the classical allusions made already this evening—of the motto which has been much quoted of late "*Labor vitæ vitæ est*," the realization of which is indicated in the speech to which we have been privileged to listen.

The interchange of thoughts and ideas is good for both the giver and receiver, whether it be in connection with scientific, philosophic or moral reasoning, and especially in the light of the remark as to the diversity of gifts possessed by members of the Institute and Engineers generally. It stands beyond controversy that the meetings held for the reading and discussing of papers are calculated to do great good. There is satisfaction to the man of knowledge and experience, in imparting to others the lessons which life has taught him ; the act of imparting that which is good, does good both subjectively and objectively, and also tends to advance the ultimate good in ever enlarging circles. We seek to improve each other, and the trade or profession by which we live, we desire to improve our methods of working and economize our materials and place our national resources at the highest point of vantage, that we may be able to hold our own place in the commerce of the world.

Since last year we can count our gains as an institute, we

can also, alas, count our losses. We have entered into possession of our own freehold premises, where we have more accommodation to carry on efficiently the operations involved in such an institute as ours. The contributions towards the premises have been received with the greatest satisfaction, in that they have been given with heartiness and—voluntarily.

Our membership has increased to fully 600, and embraces the wide area of the globe. Calcutta and Bombay each has a good large membership, and it is hoped that these cities will have centres soon in full operation. With the local membership on the British Channel, and the enthusiasm, which is manifest here, I look to see a prosperous session and a good record for 1892—3.

The crest and motto of the institute have been spoken of to-night, the motto *nec remis, nec velis*, “neither with oars nor sails,” implies an advance to steam, let us advance, expanding year by year, improving as we expand. Before sitting down, I again thank you for the manner in which the toast has been received.

THE PRESIDENT, in acknowledging the toast, said that it was hardly necessary to add a word to what had fallen from the lips of Mr. Adamson, except to assure Captain Chalmers, who represented on that occasion the well-wishers of the Institute in Cardiff, that his kind and helpful words of encouragement were appreciated by the members of the Bristol Channel Centre in a double sense, inasmuch as these were loyal members, and rejoiced in the success of the Institute as a whole, while at the same time they were solicitous that their Centre should ultimately attain to a position in all respects worthy of the connection which bound the Centre to the main body. But, for the benefit of those then present who were not yet deep in the secrets of the Bristol Channel Centre, he might say that it had long ago been determined to do the best that men and engineers could do to make that Centre even something more of a success than the splendid gathering of that evening testified they might already claim it to be. They meant business, and business meant hard work and marching with the times. Difficulties of no ordinary sort had been experienced, and death had dealt heavy blows, but none had lost courage. There was no reason but rather to the contrary that they should not grow from more to more. Such an institution as theirs was indispensable in a city so intimately connected with marine engineering as Cardiff. No man could afford to stand still in his profession. No man who did not give of his store of knowledge and experience, and require knowledge in return, could be an engineer: and no man could be a real engineer who was not sociable. Periodicals did much for the pro-

motion of the intercommunication between engineers which was thus certainly essential to their very existence. But nothing could take the place of a living institution. "As iron sharpeneth iron, so doth a man the face of his friend."

MR. L. P. COUBRO (London) gave "The Port and Trade of Cardiff," coupling with the toast the names of the Mayor of the Borough and Captain Pomeroy.

THE MAYOR OF CARDIFF, in responding, spoke of the immense strides Cardiff had made in trade during the years he had known it, and referred in humorous terms to the time when a 600 ton vessel entering the port was looked upon as a monster of the deep. Compare that, said his worship, with their 8,000 ton ships of to-day, and they would be able to appreciate the growth of Cardiff. (Hear, hear.) He had heard many of the croakers predicting about Cardiff's fall, but she had not yet reached her finality, and if she only went on in the future as in the past, she would become the wonder of the world.

CAPTAIN POMEROY (Dockmaster, Cardiff) also responded.

The toast of "The University College of South Wales and Monmouthshire, and the Cause of Technical Education" was submitted by Mr. Sydney F. Walker, and acknowledged by Mr. Ivor James (Registrar of the University College), who pointed out the work being done by the College.

"The Visitors" was given by Mr. Jos. Williams, and responded to by Mr. M. W. Aisbitt, M.I.N.A.

The speeches were agreeably interspersed by songs, rendered by members of the company, and the gathering was a success in every respect.

On the 26th, October, 1892, a committee meeting was held in the University College, Cardiff, Dr. Elliott presiding, and Mr. George Sloggett was nominated as Honorary Local Secretary, and at the following General Meeting, held 2nd November, 1892, on the proposal of Dr. Elliott, seconded by Mr. Ryder, Mr. Sloggett was declared duly elected. The same evening a paper by Mr. Wilson on "The treatment of boilers" was next discussed. Since that time the meetings have been continued fortnightly in the University College, Cardiff, which, thanks to the great courtesy of Mr. Ivor James (Registrar) and the Senate, is still the head-quarters and home of the Bristol Channel Centre. At the suggestion of the Committee, an appointment of Honorary Local Treasurer was made, to deal with local expenses and levy subscriptions for same. Mr. Charles Ryder was unanimously elected.

With a view of bringing the members together, and as a break in the usual routine of business, a smoking concert was

held at the Royal Hotel, Cardiff, on the 14th January, 1893. An excellent programme of music was provided, and the gathering of members and friends was a very large one. It was such a pronounced success that the Committee decided to hold another later in the year. The President and Committee have all done their utmost to further the interests of the Centre.

Appended is a list of the meetings held during the session, from which it will be seen that Mr. Jos. Williams has taken the initiative among the local members in contributing a paper, and it is expected his example will be followed by several others in the next session. Dr. Elliott has promised to write one also.



INSTITUTE OF MARINE ENGINEERS.

BRISTOL CHANNEL CENTRE.

MEETINGS HELD DURING SESSION 1892-3.

DATE.	SUBJECT.	AUTHOR.	CHAIRMAN.	PLACE OF MEETING.
1892.				
February 17	Stability (Part II.)	Mr. J. A. ROWE ...	Dr. ELLIOTT.	University College, Cardiff
"	Bulkhead Doors	Mr. S. C. SAGE ...	"	" "
October 8	Second Annual Dinner ... ..	... ..	"	Royal Hotel, Cardiff
November 2	Treatment of Boilers	Mr. W. W. WILSON	"	University College, Cardiff.
" 16	Discussion	"	"	" "
" 30	The Errors of Experts	Mr. JOS. WILLIAMS	"	" "
December 14	Our Firemen	Mr. E. O. MURPHY	"	" "
1893.				
January 14	Smoking Concert ... ..	... ..	"	Royal Hotel, Cardiff.
" 25	Steam Pipes	Mr. W. J. N. BRETT	"	University College, Cardiff.

PREMISES FUND.

TOTAL DONATIONS RECEIVED.

	£	s.	d.
Mr. John Tait*	1	0	0
„ Peter Denny, LL.D.*	50	0	0
„ Walter Brock*	25	0	0
Alderman G. W. Kidd*... ..	10	10	0
Mr. L. P. Coubro (Messrs. Lester and Perkins)*	10	0	0
Messrs. Durham, Churchill & Co.*	20	0	0
Mr. M. Keenan*	10	10	0
„ Jas. Weir*	10	0	0
„ J. H. Thomson*	10	0	0
„ A. Beldam*	25	0	0
„ C. L. E. Melsom*	5	0	0
„ C. Harris*	5	0	0
„ E. W. Manuel*	20	0	0
„ D. Phillips*	10	10	0
„ C. G. Newby*	1	0	0
Messrs. Williams, Torry and Feild	3	3	0
„ Hull, Blyth & Co.*... ..	2	2	0
Mr. W. Boaz*	10	0	0
„ D. J. Brand (Townsville)*	5	5	0
Messrs. Dewrance & Co.*	5	5	0
Mr. Peter Denny, LL.D.†	250	0	0
Messrs. Bremner & Co.*	25	0	0
Mr. John Lockie*	10	0	0
„ J. G. Lowe*	2	2	0
„ W. B. Dick*	30	0	0
Messrs. The London Zinc Mills*	10	10	0
„ Dewrance & Co. (additional)*	5	5	0
„ Bremner & Co. („)*	25	0	0
Mr. A. Laurie, Glasgow*	0	14	0
Messrs. The Union Steamship Company*	10	10	0
Messrs. Vickers & Co., per Mr. J. W. Hay*	20	0	0
Mr. A. W. Robertson*	25	0	0
„ C. E. Hudson*	2	2	0
„ A. Robertson*	1	1	0
„ J. G. Hawthorn*	5	0	0
„ A. Beldam*	2	2	0
„ A. Laurie	2	0	0
Messrs. The Darlington Forge Co.*	25	0	0
Mr. J. A. Rowe*	1	1	0
„ J. M'Lachlan*	0	19	0
Captain Hodgkinson*	2	0	0

* Credited in Report—See Session 1891-2.

† Foundation for Gold Medal.

PREMISES FUND— <i>Continued.</i>				£	s.	d.
Mr. J. Adamson*	...	...	...	5	0	0
Messrs. Rait & Gardner*	...	...	...	25	0	0
Mr. J. Stephens*	...	...	...	5	5	0
„ J. Phillips*	...	...	...	2	2	0
„ W. J. Craig*	...	...	...	2	2	0
„ J. Blelloch*	...	...	...	2	2	0
„ T. Duff*	...	...	...	1	1	0
„ W. W. Wilson*	...	...	...	5	0	0
„ M. Turnbull*	...	...	...	2	0	0
Messrs. The United Asbestos Co.*	...	...	...	12	12	0
Mr. J. A. Fisher	...	...	...	2	2	0
„ S. H. Terry*	...	...	...	1	1	0
„ J. Shanks*	...	...	...	0	10	0
„ S. Carrick*	...	...	...	5	5	0
The Right Hon. Lord Kelvin	...	...	...	50	0	0
Messrs. J. B. Westray & Co.	...	...	...	25	0	0
Mr. G. Hay	...	...	...	10	10	0
„ D. Gillespie	...	...	...	0	9	0
Messrs. Caird & Co.	...	...	...	125	0	0
Mr. J. B. Stevenson	...	...	...	1	1	0
„ D. J. Brand	...	...	...	5	5	0
Mr. E. O. Murphy	...	...	...	2	2	0
„ J. J. Graham	...	...	...	5	0	0
„ J. R. Cowell	...	...	...	1	0	0
„ R. Adam	...	...	...	2	2	0
Sir J. Brown & Co.	...	...	...	50	0	0
Mr. S. C. Sage	...	...	...	2	2	0
„ G. Inglis	...	...	...	5	0	0
„ A. Beldam	...	...	...	10	0	0
Capt. Hodgkinson	...	...	...	2	0	0
W. H. White, C.B.	...	...	...	10	10	0
R. Beldam	...	...	...	10	10	0
W. Birkett	...	...	...	2	2	0
A. McClelland	...	...	...	0	7	9

DONATIONS—LIBRARY FUND.

Mr. W. W. Houfe	...	...	...	0	10	0
„ J. C. Swift	...	...	...	1	1	0
„ G. F. Livesey	...	...	...	0	7	8
„ D. Ramsay	...	...	...	1	0	0
„ C. Anderson	...	...	...	1	0	0
„ A. Robertson	...	...	...	0	7	0
„ E. Bowen †	...	...	...	1	1	0
Per Convener, Library Committee	...	...	...	2	0	0

† Entered as an Annual Subscription in error.

At a Meeting of Council held subsequent to the Annual General Business Meeting, the election of Vice-Presidents was proceeded with, and Members of Council elected to fill the vacancies created.

The Conveners of Committees were subsequently elected, and the complete list of Office Bearers and Council, with Conveners, is as follows :—

OFFICE BEARERS AND COUNCIL.

SESSION 1893-94.

President—W. H. WHITE, Esq., C.B., LL.D., F.R.S.

Past Presidents—
 (A. BELDAM.
 G. W. MANUEL.
 PETER DENNY, LL.D., F.R.S.E.
 LORD KELVIN, LL.D., P.R.S.)

Hon. Treasurer—Mr. R. LESLIE. **Hon. Sec.**—Mr. J. ADAMSON.

Members of Council.

Mr. J. BLELLOCH.	Mr. J. G. HAWTHORN.	Mr. A. W. ROBERTSON
" D. BROWN.	" J. G. LATTI.	" J. W. SHOREY.
" L. P. COUBRO.	" J. NICOLL.	" S. C. SAGE.
" W. J. CRAIG.	" J. R. RUTHVEN.	" J. H. THOMSON
	" W. WHITE.	

Hon. Minute Secretary—Mr. C. G. NEWBY.

Bristol Channel Representative—Mr. E. JOHN.

Vice-Presidents.

Mr. R. ADAM (London)	Mr. ALD. G. W. KIDD (London,
" A. BLACK (Antwerp)	" W. H. NORTHOTT (London)
" D. J. BRAND (Townsville)	" D. PHILLIPS (Aberayron)
" W. BROCK (Dumbarton)	" HENRY PRIOR (London)
" A. B. BROWN (Edinburgh)	" J. A. ROWE (London)
" J. D. CHURCHILL (London)	" J. W. RICHARDSON (London)
" J. G. DOBBIE (Calcutta)	" A. W. SEABROOK (Bombay)
" P. DENNY, junr. (Dumbarton)	" J. STEWART (Blackwall)
" C.S.DU SAUTOY (Southampton)	" J. TAIT (Greenock)
Professor A. C. ELLIOTT, D.Sc.,	" A. THOMSON (London)
(Cardiff)	" J. WEIR (Glasgow)
Mr. J. F. FLANNERY, J.P. (London)	" G. E. WILKINSON (London)
SIR A. S. HASLAM (Derby)	" W. W. WILSON (Bombay)
Mr. J. H. IRWIN (Sunderland)	" F. W. WYMER (London)

Conveners of Committee.

Mr. J. HAWTHORN (Press Cuttings)	Mr. J. NICOLL (Transactions)
" J. F. FLANNERY (Premises)	" J. R. RUTHVEN (Extension of Centres)
" L. P. COUBRO' (Papers and Discussion)	" F. W. SHOREY (Reading Room)
" A.W. ROBERTSON (Recreation)	" J. H. THOMSON (Property,
" J. D. CHURCHILL (Finance)	Mr. J. A. ROWE (Library)

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INSTITUTE OF MARINE ENGINEERS.

SESSION



1892-93.

THIRTY-SIXTH PAPER

(OF TRANSACTIONS).

THE

MINING, MANUFACTURE & USES
OF ASBESTOS

BY

MR. J. ALFRED FISHER,

(HONORARY MEMBER).

Read Tuesday, April 12th, 1892; Discussion
continued April 26th,

AT THE

New Premises of the Institute, 53, Romford Road,
Stratford, Essex.



PREFACE.

58, ROMFORD ROAD,

STRATFORD, ESSEX.

26th April, 1892.

A meeting of the Institute of Marine Engineers was held here in the Reading Room on Tuesday evening, 12th April, presided over by Mr. F. W. Wymer, when a Paper on the Mining, Manufacture, and Uses of Asbestos was read by Mr. J. A. Fisher (Hon. Member).

The value of the Paper was enhanced by an exhibition of Asbestos Samples, of various kinds and qualities, both crude and manufactured. The interest of the discussion was such that it was decided to continue it this evening, when, in the absence of the Author of the Paper, a few opening remarks were made by a Representative on behalf of Mr. Fisher. The chair was occupied by Mr. J. H. Thomson.

JAS. ADAMSON,

Honorary Secretary.

THE END