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THE REFRACTORIES INSTITUTE



THE REFRACTORIES INSTITUTE

Reports to the Membership

SIXTEENTH ANNUAL SPRING MEETING

THE HOMESTEAD
HOT SPRINGS, VA.
MAY 19 and 20, 1966

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MINUTES OF MEMBERSHIP MEETING OF THE REFRACTORIES INSTITUTE

Held May 19 and 20, 1966 at The Homestead, Hot Springs, Va. with a record attendance of 107 men, and 75 ladies as guests. List is appended.

President R. A. Barr presided and Executive Secretary Avery C. Newton acted as secretary of the meeting.

President Barr introduced a long list of newcomers, attending an Institute Membership Meeting for the first time, and extended a warm welcome. He advised that the sudden increase in attendance had astonished and pleased everyone and expressed regrets that some members desiring to attend had been unable to secure accommodations. He assured the members that arrangements had been made for future meetings in 1967 and 1968 to accommodate all who wished to attend.

Minutes of the last Membership Meeting held at The Water Tower Inn, Chicago, Ill. on Nov. 12, 1965, previously submitted by mail, were approved.

The President announced that at a meeting of the Board of Directors held earlier this morning, all officers were re-elected to serve for the ensuing year, as follows:

President--Mr. Robert A. Barr
Vice President—Mr. Max Muller
Treasurer—Mr. William F. Porter
Executive Secretary--Mr. Avery C. Newton

On behalf of all the officers Mr. Barr thanked the Board and Membership for their continued support and expressed appreciation for the confidence shown.

The President thereupon announced that the slate of 23 Directors to serve for the ensuing year had been elected on April 30 by mail ballot of the Active Members. List of Directors is appended.

Treasurer Porter presented a statement of The Institute's receipts and disbursements for the fiscal year ended March 31, 1966, copy appended. He advised that the cash balance of $23,189.61 had been confirmed by The Institute's auditors, whose report is on file in The Institute office and available for examination by any member. The Treasurer also presented the budget for the new year starting April 1, 1966, as approved by the Directors, copy appended.

In the absence of Chairman Robert J. McCarthy, the President read his report on the 1966 Factory Operators Meeting, copy appended.

Mr. C. A. Smith, Chairman of the Technical Advisory Committee, thereupon presented a report, copy appended.

It being close to 12 noon, the meeting adjourned until 9:30 A.M. the following day.

Upon resuming the sessions, President Barr presented the report of the Industrial Relations Committee in the absence of Mr. Robert J. Wagner, Chairman. Report is appended.

President Barr thereupon reviewed some of the activities of The Institute and actions of its Board of Directors since the last meeting, not elsewhere reported, as follows:

(1) The following companies have been elected:

Lava Crucible-Refractories Co.
New Castle Refractories Co.
Marblehead Lime Co.
Chas. Pfizer & Co., Inc., Dolite-Gibsonburg Products
Standard Lime and Refractories Co.

He extended a warm welcome to these companies and their representatives here at this meeting. The Institute is continuing its efforts to persuade other refractories companies to join and the President noted that we now have a very wide representation in all aspects of the Refractories Industry.

(2) A Dolomitic Refractories Committee has been created with Henry Day, president of Valley Dolomite Corp., as chairman and Joe Knight, vice president of Kaiser Refractories as vice chairman. This committee, serving the special interests of the dolomitic refractories producers, will operate under the same rules of procedure as any other standing committee of The Institute.

(3) The President advised that a report will follow on the results of the first year of operation of the Refractories Industry Research Center at The Ohio State University. As was perhaps anticipated, the university has not been able to make the refractories testing department pay for itself, although the deficits are half those we were incurring at Mellon Institute. He said that the Directors, however, were convinced that the maintenance of an independent testing laboratory is essential to the industry and its customers. In addition, since the Center is under the direction of the Ceramic Engineering Department of the university, a valuable contribution to the education and training of men in refractories is being made.

He said that the Board of Directors, therefore, authorized The Institute to contribute funds up to certain maximum limits. After reviewing the financial situation of the Center with university authorities, it was jointly agreed that The Institute would contribute $14,000 toward the operating costs for the past year ended March 31, 1966 and up to $20,000 for the second year ending March 31, 1967.

(4) The President thereupon reminded the members that refractory grade calcined bauxite used in the production of high alumina brick and mortars has been in extremely short supply for some years. The two producers with plants in British Guiana and Surinam have been unable to keep up with the demand. Both Aluminium and Alcoa are planning to increase production and Reynolds Metals is entering the field with a new plant, but relief to the refractories industry is not expected until 1968.

He advised that the Office of Emergency Planning finally agreed to dispose of 126,000 tons from the national stockpiles. The General Services Administration held a public hearing in Washington on February 24, 1966 at which The Institute presented recommendations for the orderly and equitable disposal of this surplus material over a three year period. With slight modifications The Institute's view were accepted.

Bills were introduced in Congress, he said, supported by the Administration, to authorize the disposal of this surplus bauxite and the measure became a law on April 14. Contracts were promptly thereafter mailed to all refractories consumers by GSA offering them their share of the 40,000 tons to be sold this year based on a set percentage of their consumption in 1965. 10,000 additional tons have been set aside for hardship cases. 40,000 tons more will be released in 1967 and the remaining balance of the total of 126,000 tons will be released in 1968, if needed.

(5) The President advised the members that The Institute had again renewed its annual contract with the Bureau of the Census for the quarterly statistics on shipments of refractories. This invaluable industry service was first arranged in 1957 and costs The Institute a modest $3400 a year, he said.

(6) The President reported that the Board of Directors has authorized us to again hold a Fall Membership Meeting since the meeting held last November proved to be so successful. This will again be a strictly business one-day meeting for men only. Date is Friday, November 11. Place is The Water Tower Inn in Chicago, Ill.

Further, he advised that the 1967 Spring Membership Meeting, open to the ladies as well as the men, will be held at The Greenbrier, White Sulphur Springs, West Virginia on June 15 and 16. Ample accommodations have been arranged but he urged the members to make their reservations promptly on receipt of the first formal notice of the meeting which will be mailed to them three months in advance.

(7) The President advised that at a meeting of the Board of Directors a suggestion had been made to limit attendance at alternate Spring meetings to men only to increase the opportunity for business discussions of mutual interest. It was felt that this was particularly important in view of the many new member companies in The Institute and the many changes in personnel among all companies. This suggestion at that time, he said, met with wide approval.

However, at the Board Meeting yesterday the subject was again reviewed and this time opinion was about equally divided, he said. The Board thereupon referred the matter to the Public Relations Committee with the suggestion that they prepare a letter to the membership seeking their opinion, to serve as a guide to the Directors. The President advised that the meetings in the Spring of 1967 and 1968 would not be affected -they remain open to members and their wives.

Passing on to other matters, the President called on Mr. A. Brent Wilson, Chairman of the Public Relations Committee, for a brief report. Text is appended.

The President then called on Mr. Robert W. Knauft, Chairman of our Foundation in Refractories Education, for his report, copy appended.

Dr. Ralston Russell, Director of the Refractories Industry Research Center, thereupon presented a report, copy appended.

The President thereupon called on Mr. William J. Kenney, General Counsel of The Institute, for a report on the current status of our percentage depletion problems.

The President then advised that our guest speaker, Mr. Robert Taft, Jr., had been obliged regretfully to cancel his appearance at the last moment because of the sudden and serious illness of his wife.

There being no further business to come before the meeting, on motion, adjourned.

AVERY C. NEWTON, *Secretary.*

FACTORY OPERATORS COMMITTEE

We had an outstanding Factory Operators Meeting in Columbus, Ohio last month on April 14 and 15. First, our attendance totaled 183, a near record.

Second, and most important, the program was [illegible] complete departure from our usual format and it was received with enthusiasm and interest by the audience.

In years past, the major portion of our Operators Meetings has been devoted to audience discussions of refractories production problems, with or without a panel of experts as leaders. These have been most fruitful but we found that we were frequently arguing the same old questions.

This year, with the active support and participation of members of the staff of Battelle Memorial Institute, our program was largely devoted to Modern Methods of Production Planning and Inventory Control. Homework problems were presented to our group during the first day to solve mathematically and I am proud to report that many in our group presented solutions for possible inventory policies the following day, some of which closely matched the optimum results achieved by feeding the data into a computer.

A printed summary of the proceedings will be mailed to the membership shortly.

On behalf of The Institute, I want to particularly express our gratitude to Pat O'Bannon of Battelle for the use of their auditorium and facilities, and especially for lining up such a fine array of talent who presented the problems and solutions in a language which we could understand.

It was a pleasure for me to serve as chairman of this meeting which certainly, as one member put it, "stretched our minds".

Respectfully submitted,

R. J. MCCARTHY, *Chairman*

FOUNDATION IN REFRACTORIES EDUCATION

The Foundation in Refractories Education, commonly called FIRE, as most of you know is a tax exempt charitable trust. Contributions are deductible from the taxable income of donors as gifts for approved education purposes.

The principal purposes of the Foundation are (1) to establish fellowships in Ceramic Engineering on a graduate level, (2) to provide equipment, facilities and instruction in the fields of refractories, (3) to provide funds for research on refractories.

Last year the Foundation received a grant of $15,000 from The Institute's dues income and $725.00 as direct contributions from members. If you have an interest in including the Foundation in your list of company or individual charitable contributions, please review the little FIRE brochure.

During the year 1966-67 the Foundation will again receive a contribution of $15,000 from The Refractories Institute. In addition, we are pleased to report that the Dolomitic Refractories Association has voted to contribute some $3,700.00, being the balance in its treasury, after payment of legal fees and dissolution expenses.

Last year the Foundation contributed $10,000 for a graduate fellowship research study at The Ohio State University on Hot Modulus of Rupture. Dr. Russell of the Ceramic Engineering Department of OSU will report to you later this morning on the progress of that study.

The Foundation expresses its thanks to Lin Bettison of

Chambers Brothers Co. for donating their complete set of carefully engineered drawings for the construction of the Castable Meter and Mixer. These drawings represent an investment of some $3,500.00. Copies of these drawings are available to any member company, desiring to build the ASTM test equipment themselves, from FIRE, c/o The Institute office, at $25.00 per set.

This September, we propose to finance another graduate fellowship study at Ohio State on spalling. Subsequently, as funds are available, we will have a research project on slag testing, perhaps at the University of Missouri or some other ceramic engineering school.

The success of the Foundation in conducting research for the benefit of the industry and in advancing the educational opportunities for ceramic engineering students is largely dependent on your financial support and continuing interest.

Respectfully submitted,

R. W. KNAUFT, *Chairman*

INDUSTRIAL RELATIONS COMMITTEE

At the request of the Industrial Relations Committee of The Refractories Institute, the following letter was mailed to each Active Member company under date of March 15, 1966:

The battle over the President's wage-price guidelines continued to rage, and it is not likely to abate in the near future. His Council of Economic Advisers contends that increases in wage costs should not exceed the 3.2% annual increase in productivity. The AFL-CIO charges that the Council, in departing from its most recent 5-year period for measurement, has changed the rules and that 3.6% is the proper figure.

It is questionable if the trend rate of increase in output per man-hour has reached 3.2% in the Refractories Industry, regardless of the period used for measurement. In our 1962 survey on productivity we used the 1948-61 period; and with 13 companies participating with over 9,000 production and maintenance employees, we came up with a figure of less than one per cent.

Question No. 1—On Productivity

In this survey, so that it cannot be attacked by the Unions, we are using the most recent 5-year period, i.e. 1961 through 1965. We are asking each member company for a reply to the following questions:

(a) What has been your company's annual average increase or decrease, percentage-wise, in output per man-hour worked for the period 1961-1965 inclusive, using 1960 as the base year?

(b) Average annual number of production and maintenance employees involved?

On productivity, replies were received from 29 companies with 9,016 production and maintenance employees. The completed computation shows an average annual increase in productivity (output per man-hour) of 1.96% over the past five years.

Operating Capacity

Our unions have been told that the competitive situation in the Refractories Industry today prohibits general price increases to offset increases in wages. To support this statement, the committee felt that figures on one indicator of the competitive situation—unused productive capacity—would be helpful. Accordingly, the companies were also asked the following question:

At what per cent of total productive capacity did your company operate in the calendar year 1965?

Twenty-eight (28) companies replied to this question, and we have a weighted average figure of 68.7%.

The committee wishes to thank those companies who cooperated in this survey.

Industry Labor Meeting

Representatives of 21 companies attended a labor meeting held by the committee on January 13, 1966 in Pittsburgh, Pa. Results of the wage and fringe benefits survey were discussed. The group then turned its attention to collective bargaining problems to be encountered in 1966, and what the various companies both union and non-union planned to do this year.

It was the consensus of those companies which have contracts open at about the same time in mid-year that their interests would best be served if they negotiated with the Brick and Clay Workers Union as a group, such as had been done in the very successful bargaining years of 1962 and 1963. However, since the Industrial Union Department of the AFL-CIO had entered the scene, and other International Unions were joining the Brick and Clay Workers for concerted action, there was some apprehension as to the success of group bargaining.

In February, the new top officers of the Brick and Clay Workers International Union notified the Industrial Relations Committee that their union had withdrawn from the IUD group and that they wished to negotiate in 1966 as they had in 1962—as one union, with a group of as many refractories companies as possible. As of this date, nine of the same companies who comprised the group in 1962 have signified their intention of bargaining together this year, a tenth company will probably join, and an eleventh company is considering such action. Any company which has the Brick and Clay Workers Union, and whose contract is open shortly before or after July 31, 1966 is welcome to join the group.

The next labor meeting will not be a general meeting, but will be composed of these companies only.

Respectfully submitted,

ROBERT J. WAGNER, *Chairman*

PUBLIC RELATIONS COMMITTEE

The Public Relations Committee is pleased to present our revised industry brochure, "From Firelight to Satellite", copies of which you will find on the table in the rear of the room. As you will note, it is a most attractive appearing booklet. The text has been revised and up-dated where necessary and some new pictures have been included. A new section devoted to career opportunities in the refractories industry has been added.

30,000 copies have been printed. Every member may have quantities of this brochure without charge as long as they are used to promote the image of the refractories industry. Keep copies on the tables in your reception rooms, mail copies to your customers, use them in your high school and college recruiting campaigns. Hand them out whenever you are asked the question, "What is a refractory"?

Respectfully submitted,

A. BRENT WILSON, *Chairman*

TECHNICAL ADVISORY COMMITTEE

The T.A.C. met on October 5, 1965 at Bedford Springs, Pennsylvania. The committee also held a meeting at Pittsburgh, Pennsylvania at the Hilton Hotel on April 12, 1966. Counsel William Kenney and Executive Secretary, Avery Newton attended both meetings. At the October meeting, Professors Ralston Russell and George Harrell of Ohio State University were present as guests reporting on the R.I.R.C. (Refractories Industry Research Center). Dr. Russell also made a report at the April 12, 1966 meeting on the R.I.R.C. testing program and a progress report on the Hot Modulus of Rupture research program of F.I.R.E.

Mr. Harley C. Lee, of Basic, Inc., is a new member of T.A.C.

Considerable time has been spent in T.A.C. meetings working with Dr. Russell, of Ohio State, in connection with operational and planning questions relating both to the R.I.R.C. testing program and to the research project on Hot Modulus of Rupture. Also, considerable consideration to possible future research programs has been given for the use of the F.I.R.E. committee.

The testing department at R.I.R.C. is functioning on all previous standard tests and now will be able to add hot modulus testing. We understand D.T.A. (Differential Thermal Analysis) tests are available and that there is a good chance that thermal gravimetric analyses and X-ray analyses will soon be available. The testing department can handle much more work than it is receiving from industry. Any test work you can send will be greatly appreciated.

The research program on hot modulus is active and progressing well. Five series of alumina-silica compositions ranging from 50% to 90% alumina and of several firing temperatures will be processed through several ranges of hot modulus tests. O.S.U. will furnish progress reports before the next T.A.C. meeting. This program will extend through all of 1966 and probably through 1967.

A new specification on plastic firebrick by the City of New York dated February 25, was sent to the membership for any necessary individual comments. There has been no new information on U. S. Army Engineers Corps interest in a NASA data retrieval project on refractory products.

Some additional castable meter prints have been sold.

T.A.C. members continue to actively participate in the various A.S.T.M. C-8 committees.

Respectfully submitted,

C. A. SMITH, Chairman

REFRACTORIES INDUSTRY RESEARCH CENTER

The Refractories Industry Research Center (RIRC) completed its first year of operation on March 31, 1966. It is therefore appropriate to review our major accomplishments, our current status, and our continuing problems.

An apt title for this report might be "From Illusion to Reality". When we first planned The Refractories Center as a cooperative venture of TRI and the University, it was relatively easy to list real and potential benefits of such an association. But as with all worthwhile accomplishments there have been many problems. both of an organizational and a physical nature. I am able to report nevertheless that to date, with the continuing help of TRI, we have dealt successfully with all physical problems to the extent necessary for operation and that we have had sufficient organizational success to meet our ongoing commitments. In looking back I must admit to some earlier illusions regarding the facility with which the testing program could be operated, its financial aspects, and also the speed with which we might develop the other phases of our overall program. Nevertheless, on the wings of gradual disillusionment has come a strengthened belief that even our grandest hopes are realizable providing we continue to develop a solid base for future operations.

At the risk of being redundant, let me remind you of the four service areas comprising our program as originally conceived and still envisioned:

1. A complete refractories testing service, changing as needed to remain widely useful.

2. Test evaluation and new test development, including the improvement and expansion of testing facilities and capabilities.

3. Refractories research and development, encompassing both applied and fundamental approaches.

4. Improvement and expansion of opportunities in refractories education.

The Testing Service

The refractories testing service through which we provide a comprehensive line of tests for both producers and consumers represents our major accomplishment to date. The actual testing coupled with continual attention to the setup of facilities has occupied the fulltime attention of our two technicians and part-time laboratory manager. Considering the problems associated with relocation of the TRI facilities from Mellon Institute and our improvised space arrangement, we are justifiably proud of our record of handling a wide variety of regular and special test orders efficiently and reliably.

Using the Mellon price schedule pending the accumulation of cost information, our testing operation realized an income of $29,820.00, during the fiscal year from April 1, 1965 to March 31, 1966, thus maintaining a volume equivalent to the last year of the Mellon Fellowship. While this volume of business met realistic expectations for the first year, it nevertheless represents a modest deficit in terms of direct plus indirect costs for this phase of our program. All concerned desire that the testing service be as fully self-supporting as possible, and accordingly a modest general price increase plus selective increases for decidedly underpriced items are to be effected within the near future. Even with price increases, however, deficits will continue to characterize the testing operation unless both the volume and type of test orders become more favorable. For example, a 25%-50% greater amount of testing service could be provided with no increase in staff, emphasizing one logical approach to deficit control. While we hope to increase the testing service provided to nonmembers of TRI, we do feel major support must come from TRI members, as has undeniably been the case so far.

A completely new bulletin listing all of our testing services, the new prices, and a number of new test offerings is now being prepared to replace the original bulletin, "Tests for Refractories". This new bulletin will be mailed to all recipients of our earlier bulletin and will be widely announced.

We plan to continue efforts to become more efficient in our testing operation, to review the offerings with the

eventual possibility of selected deletions, to add new services which appear most needed, and to explore ways of improving our contacts with potential users of the testing service. We fully recognize the desirability of maintaining a dynamic and popular testing operation in order to be of maximum service.

New Testing Services

In line with the policy of offering currently popular tests, we are announcing the availability of several new services in the new edition of our bulletin, "Tests for Refractories". Included for the first time will be the increasingly popular Hot Modulus of Rupture Test, made possible in part through a research grant from the Foundation in Refractories Education (F.I.R.E.). The other new offerings are based on facilities provided through our Department of Ceramic Engineering, and include X-ray Diffraction at both normal and elevated temperatures, Differential Thermal Analysis (DTA), Thermogravimetric Analysis (TGA), Effluent Gas Analysis (EGA), and the automatic determination of thermal expansion or Thermal Dilatometric Analysis (TDA), with all of the foregoing being available to 1500°C. Some limited optical services, involving use of the petrographic microscope, metallographic microscope and the electron microscope will be offered to the extent personnel allow. One of the obvious problems in moving from the conventional tests for refractories to the use of more sophisticated laboratory equipment is the limited availability of staff members with both sufficient time and background to provide the interpretations these services will often require. We feel however that a need exists for such services and will provide them to the extent feasible.

We will of course continue to evaluate the needs for additional services, e.g. slag attack or corrosion of refractories, thermal conductivity, abrasion resistance, etc. In most cases, new tests require new facilities, which means equipment must be provided through TRI or by the Department of Ceramic Engineering. It might also be noted that in some cases new test offerings will first require rather extensive test development and evaluation programs, posing both financial and personnel problems.

Research Progress

Several researches on refractories have been pursued during the year. Foremost from a TRI standpoint is a study of "The Hot Strength of Fireclay and High-Alumina Refractories", a project jointly supported by the Foundation in Refractories Education and the University. This project led to installation of our Hot Modulus Furnace permitting strength determinations to 3000°F. The first research will be completed by Summer, and a technical paper will be presented before the Refractories Division, American Ceramic Society. We tentatively plan to continue this research in a direction extending the original plan, as now seems highly desirable.

Using fellowship support provided by an Institute member company, we will complete by Fall a study of "Hot Strength Dependency on Grog Sizing for High Alumina Refractories". A technical paper covering this work is also planned.

We have two studies in progress on fireclay, high alumina, and basic refractories, dealing with the effects of furnace atmosphere on the high temperature sintering or maturing reactions in producing these refractories. These studies are part of a larger program supported by Columbia Gas Systems Service Corporation and the Southern California Gas Company from which we hope to isolate the permissible and most desirable firing practices for production of refractories and other ceramics.

Two other research projects on refractories, privately sponsored by TRI member companies, have been carried on within our Department of Ceramic Engineering during the year. We are of course most grateful to F.I.R.E. as well as those companies which have sponsored our refractories research efforts and have thus supported the graduate students during the actual research work.

During 1966-67, efforts will continue in most of the foregoing research areas, but we also hope to initiate new research on the basis of support from individual companies, F.I.R.E., and the University. Discussions with your Technical Advisory Committee, which have been most helpful to us throughout the year, have led to a tentative plan to study the spalling of refractories, and particularly the panel spalling test. We are considering in addition the development of a slag testing facility and a research program on slag attack. Also of interest are several discussions with a manufacturer regarding the development of equipment and a test program on refractory hangers or anchors.

While reasonably good progress has been made in developing a program of refractories research, we look forward to increasing support of this area by individual companies. It is only through the greater exploitation of the research area that we may realize the twin objectives of providing training and orientation for graduate students, while contributing to refractories technology through an increased output of technical papers. We note with interest and appreciation the research support of TRI member companies to several of our sister universities, which we feel is both sound and commendable.

Refractories Education

Since as I stated last year the "education and development of ceramic engineering talent for industry is the primary function of our Department of Ceramic Engineering" it may seem anomalous that no specific program for refractories education has been developed to date. This anomaly simply results from natural circumstances relating to the development of our Refractories Center, and particularly staff availability. While educational developments must necessarily come last and slowly at best, we fully recognize the desirability of considering ways of improving and expanding refractories opportunities for both undergraduate and graduate students as soon as possible. In lieu of specifically planned efforts we nevertheless have realized some educational progress through the association of selected undergraduate students with our setup and testing program, through the appointment of graduate students as the principal investigators on our refractories research fellowships and projects, through the availability of the Center's facilities on a controlled basis for student laboratory use, and through the growing familiarity of our student body with your industry via our program.

Summary

Summarizing our status after one year of operation, the refractories testing service is being handled in a manner comparable to the former operation at Mellon Institute, and the volume is roughly equivalent to the final year of that operation. Coupled with an imminent increase in charges as encouraged by your Officers, a greater volume of testing must be requisitioned by your companies or others to make this phase of the operation self-supporting.

We have made a good start in the area of test development and evaluation, and plan to make a greater contribution to A.S.T.M. Committee C-8, although this phase of our program must develop slowly. This area in general will probably never be financially self-supporting.

The amount of refractories-oriented research being carried on by our graduate students is reasonably satisfactory, but must increase gradually with support from your companies to allow us to better fulfill this objective. Our research is and will continue to be completely self-supporting, with the possible exception of special equipment requirements.

Much remains to be done in the refractories educational area both locally and on a national scale, but some corollary educational benefits are accruing locally through our regular program activities. This area cannot of course be financially self-supporting.

As already stated, the principal problems relate to financing and directing the overall program, although neither of these problems is without reasonable solution.

In conclusion, be assured of our confidence in the future of The Refractories Industry Research Center and of our complete satisfaction with our association with The Refractories Institute and its representatives who have encouraged and assisted us so well. Let us now continue forward together toward the fuller realization of our goals.

Respectfully submitted,

RALSTON RUSSELL, JR.

ANNUAL ELECTION OF DIRECTORS

The Nominating Committee on March 15, 1966 submitted the following recommendations for Directors which were adopted by mail vote of the Active Members of The Refractories Institute. The committee comprised W. R. Ramsay, Chairman, A. M. Swank and Max Muller. In accordance with the By-Laws, the Board of Directors set April 30, 1966 as Election Day. List of Directors elected for a one-year term follows:

F. H. Atwood ..... Harbison-Walker Refractories Co.
R. A. Barr ..... The Babcock & Wilcox Co.
M. W. Burleson ..... Johns-Manville Corp.
G. V. Campbell ..... The Ramtite Co.
E. E. Davis ..... The Davis Fire Brick Co.
W. A. France ..... J. H. France Refractories Co.
C. E. Goudge ..... International Pipe & Ceramics Corp.
H. T. Graham ..... General Refractories Co.
R. W. Knauft ..... The Chas. Taylor Sons Co.
J. F. Knight ..... Kaiser Refractories
F. H. Laube ..... Freeport Brick Co.
E. C. Leibig ..... Corhart Refractories Co.
W. S. Lowe ..... A. P. Green Refractories Co.
M. E. Morgan ..... Cedar Heights Clay Co.
Max Muller ..... Basic Incorporated
W. H. Peterson, Sr. ..... Valentine Fire Brick Co.
W. F. Porter ..... The Globe Brick Co.
W. R. Ramsay ..... North American Refractories Co.
A. M. Swank ..... Hiram Swank's Sons
A. J. Tomasek ..... Walsh Refractories Corp.
W. T. Tredennick ..... Resco Products, Inc.
A. B. Wilson ..... Harbison-Walker Refractories Co.
W. G. Young ..... Chicago Fire Brick Co.

TREASURER'S REPORT

Fiscal Year April 1, 1965 - March 31, 1966

(Cash Receipts and Disbursements)

Receipts	
Cash on hand April 1, 1965	$ 14,441.33
Dues	129,811.65
Miscellaneous	7,941.17
Total	$152,194.15
Disbursements	
Audit and Legal	$ 8,807.50
Census Bureau	3,400.00
Committee C-8, ASTM	1,022.80
Contribution to F.I.R.E.	15,000.00
Dues and Subscriptions	1,239.00
Furniture and Fixtures	578.20
Meeting Expense	9,561.23
M. I. Fellowship, Closing Costs	3,816.41
Office Expense and Postage	4,488.39
Operating Reserve Account	25,000.00
Pension Premiums	4,059.47
Percentage Depletion	1,944.89
Printing and Publishing	12,890.94
Rent	2,472.00
Salaries, net	23,171.21
Taxes and Insurance	7,065.88
Telephone and Telegraph	813.67
Travel	3,340.08
Miscellaneous	332.87
Total	$129,004.54
CASH BALANCE MARCH 31, 1966	$ 23,189.61

Respectfully submitted,

W. F. PORTER, Treasurer

BUDGET

April 1, 1966 - March 31, 1967

Income	
Dues	$175,000.00
Miscellaneous	3,000.00
Total	$178,000.00
Expense	
Audit and Legal	$ 11,000.00
Census Bureau	3,400.00
Committee C-8, ASTM	1,500.00
Contribution to F.I.R.E.	15,000.00
Dues and Subscriptions	1,300.00
Furniture and Fixtures	500.00
Industry Brochure	13,500.00
Meeting Expense	10,000.00
Office Expense	5,000.00
Operating Reserve Account	25,000.00
Pension Premiums	3,426.00
Printing and Publishing	3,500.00
Refractories Industry Research Center	25,000.00
Rent	2,472.00
Salaries, net	23,200.00
Taxes and Insurance	7,300.00
Telephone and Telegraph	1,000.00
Travel	4,000.00
Miscellaneous	500.00
Total	$156,598.00
ADD TO SURPLUS	$ 21,402.00

ATTENDANCE LIST

Active Members

Alcan Sales Inc.
Mr. and Mrs. J. E. Pepall

The Babcock & Wilcox Co.
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