

## INTRODUCTION

The present Keramos Fraternity is the result of the merging of two older professional ceramic engineering fraternities, Beta Pi Kappa, established at Ohio State University early in the fall of 1902, and Keramos, at the University of Illinois in the winter of 1914-15. Though their beginnings were separated by time and place, their similar membership requirements and fraternal objectives seemed to point toward an eventual consolidation. Nevertheless, this did not take place until 1932.

### THE COLLEGE FRATERNITY SYSTEM<sup>1</sup>

Throughout the history of Keramos, especially since the 1932 merger and reorganization, seemingly the membership has been confused about certain basic concepts concerning fraternities. This has led to endless debate. It would seem desirable to present a brief overview of the system before proceeding with the history of Keramos.

By definition, fraternities are organizations of males. In the context of college life, the term generally refers to those secret social orders which bring together young men of similar predilections. Sororities serve the same purpose for young women. Collectively they constitute a large portion of the social organization on most college campuses. Because most are identified by two or three Greek letters, such organizations are usually termed "Greek letter societies." The oldest, Phi Beta Kappa, was founded by five close friends at the College of William and Mary, Williamsburg, Va., on December 5, 1776. Shortly thereafter chapters were formed at other colleges. Greek letter fraternities became a part of the American college scene. Though Phi Beta Kappa began as a literary society it gradually assumed its present character of a scholastic honor organization. Attempts were made to form other similar societies but, for the most part, they did not last very long. However, in 1825 Kappa Alpha was established at Union College, Schenectady, N.Y. Two other groups were formed within the next two years. The three, together, became known as the "Union Triad" and were the models for fraternities that gradually supplanted the numerous literary societies that had grown up through the intervening years at the various colleges.

The practice of medicine is probably the oldest of man's professions. Thus, it is not entirely surprising that the first professional fraternity was organized to bring closer members of that calling. Known as the Kappa Lambda Society of Aesculapius, it was formed at Transylvania College, Lexington, Ky., in 1819. Chapters were established in New York, Philadelphia and Baltimore. Nevertheless, internal strife caused its dissolution in 1835.

Around 1870 many universities were beginning to establish professional schools. Also, through "grass-roots" agitation, state legislatures were beginning to take advantage of the provisions of the Morrill Act of

1862 which provided Federal lands for the establishment of colleges that would offer programs in agriculture, engineering (mechanic arts) and home economics. The growth was greatly accelerated by the enactment of the Hatch Act (1887) providing Federal funds for research and experimental stations and, followed by the Smith-Lever Act (1914), granting support for agriculture and home economic extension services. With this growth in professional activities, it was to be expected that fraternities would be founded that restricted their membership to students of a particular profession. Keramos is one of these.

Thus, three types of fraternities have developed: general or social fraternities (and sororities), honor societies, and professional fraternities. In certain instances, the distinction between honorary and professional fraternities has not been appreciated. Confusion stems from the fact that many honorary societies limit membership to a single profession. Such is the situation with Tau Beta Pi whose membership is limited to engineering, any engineering; however, *only* students achieving scholastic excellence are eligible. On the other hand, Theta Tau is a professional fraternity with membership from all branches of engineering. It emphasizes the advancement of engineering as a profession of high ethical standards. The professional fraternities do not ignore scholastic attainment but encourage it through various activities. Their goal is not so much an award for accomplishment as a banding together of persons of common professional goals and high expectations of service and achievement in their professional life *after* leaving the campus.

Honorary and professional fraternities have one characteristic in common, quite different from social fraternities and sororities. Normally they are not restrictive as to sex. The social organizations usually have "houses" with full living accommodations. Most of the honorary and professional fraternities do not.

Though the term, Greek letter society, is used in an all-inclusive sense, such a society need not be so named (e.g., Keramos); however, the vast majority are. In the 1977 issue of the *Encyclopedia of Associations*<sup>2</sup> only 28 of the approximately 330 collegiate organizations listed had non-Greek letter names.

Of the existing professional fraternities the oldest, Phi Delta Phi in the field of law, was founded in 1869. Others, particularly in the older professions (in terms of recognition) such as law, medicine, dentistry and pharmacy, followed in rapid succession. At the same time, numerous honor societies were formed, some general and some limited to particular professions. Of interest to the engineers was the establishment of four honor societies: Tau Beta Pi Association (1885) engineering, Sigma Xi (1886) natural sciences, Phi Kappa Phi (1897) scholarship, and Iota Sigma Pi (1902) professional honorary. The engineers were organizing also: Beta Pi Kappa (1902) later to become Keramos, professional, ceramic engineering; Theta Tau (1904) professional, all engineering; Eta Kappa Nu (1904) hon-

orary, electrical engineering; Pi Tau Sigma (1915) honorary, mechanical engineering; Chi Epsilon (1922) professional, civil engineering; Kappa Eta Kappa (1923) professional, electrical engineering, and Sigma Phi Delta (1924) professional engineering.

The foregoing discussion has been presented without pretensions of completeness. The intent has been to furnish background to place this biographical history of Keramos in proper perspective.

### **THE KERAMOS STORY**

The history of Keramos quite readily divides into chronological segments, the principal divisions being:

1. Founding and early history of the two ancestral fraternities, Beta Pi Kappa and Keramos,
2. The consolidation of the two,
3. The role of leadership in promoting national recognition of ceramic engineering as a profession.
4. Expansion and reorganization, and
5. Recent activities.

In general, the text will follow this outline. Supplemental material; i.e., biographical sketches of prominent Keramos personalities, histories of the individual chapters, lists of officers, etc., will be treated in appendixes.

### **REFERENCES**

- <sup>1</sup> The American College Fraternity System, Professional Interfraternity Conference, Chicago, Ill., 1939.
- <sup>2</sup> Encyclopedia of Associations, Gale Research Co., Detroit, Mich. 1977.

## EARLY HISTORY

### BEFORE THE BEGINNING

Had not Edward Orton, Jr.<sup>o</sup> on graduation from Ohio State University in 1884, entered the metallurgical field and changed to the clay products industry in 1888, Keramos probably would not exist. In dealing with the problems of the clay industry he soon found that there were very few trained individuals and essentially no technical literature. To correct this situation Orton, in 1893, persuaded two manufacturers' organizations, the Ohio Brick and Tile Association and the National Brick Manufacturers Association, to support actively the establishment of technical ceramic instruction at the Ohio State University. As a result of these efforts, the Ohio Legislature in 1894 directed the University's trustees to establish the Department of Ceramics which began to function during the following year. Thus was ceramic engineering education born. The fact that Orton's father had been the University's first president (1873-81), and was still a professor, must not have hurt his cause.

### BETA PI KAPPA

**Founding of Beta Pi Kappa, 1902.**<sup>1</sup> It is unfortunate that all written records of the early Beta Pi Kappa were lost.\* As a consequence the scant information available is based entirely on the memories of the participants and as recorded long afterward by Greaves-Walker<sup>o</sup>. He wrote that, "As the curriculum in ceramic engineering was the first to be offered by a university outside of the four recognized degree-granting branches of engineering; viz., civil, mining, mechanical and electrical, and was considered by most engineering educators at the time as rather unorthodox, some of the students in the newly established department at the Ohio State University were convinced that it was going to be difficult to obtain recognition of this new field as a fundamental branch of engineering. This feeling was enhanced by the fact that The American Ceramic Society, which had been organized three years before, was a technical and not an engineering society and admitted any applicant who was 'interested in clays or clay working.'"<sup>1</sup>

Greaves-Walker related that soon after the fall term of 1902 began, meetings were held to discuss the possibility of forming a ceramic engineering fraternity. L. B. Coulter<sup>o</sup> was elected temporary chairman. "Be-

<sup>o</sup> following a name indicates that a biographical sketch is included in Appendix IV

\* "The original constitution and bylaws and the minutes of the organization and following meetings were lost when Walter Stowe Porter, a second assistant Master Potter (secretary) of the Chapter, left Ohio State University and carried the records with him. In 1909 he met A. F. Greaves-Walker in Salt Lake City and promised to send these records to him, but his (Porter's) sudden death within thirty days thereafter (in a remote area of Colorado) prevented his doing so. Efforts to locate them after Porter's death proved fruitless."<sup>1</sup>

cause the idea of organizing a fraternity, the membership of which was to be confined to students in one department, was new, considerable discussion took place, particularly among those belonging to social fraternities, as to whether a student could belong to two fraternities. Some of those present were not in sympathy with Greek letter fraternities and favored the organization of a society." "As an upshot of the meeting only a small group agreed to organize. These, as well as can be remembered, included C. H. Griffin,<sup>o</sup> Mark Ogan,<sup>o</sup> Harry McMillen, L. B. Coulter, A. F. Greaves-Walker and several others whose names are forgotten."



Orton Hall, The Ohio State University (1893). Beta Pi Kappa was organized here in 1902. (After A. F. Greaves-Walker, *The History of Keramos* (1902-1952).

Greaves-Walker<sup>1</sup> recorded that Beta Pi Kappa was founded September 30, 1902. The first Chapter officers were:

- L. B. Coulter, Master Potter (President)
- C. H. Griffin, 1st Assistant Master Potter (Vice President)
- Mark Ogan\*, 2nd Assistant Master Potter (Secretary)
- A. F. Greaves-Walker, 3rd Assistant Master Potter (Treasurer)
- Unknown, 4th Assistant Master Potter (Herald)

"At subsequent meetings, held during the fall and winter terms, it was decided that the principal objectives of the organization should be (1) the promotion of ceramic engineering, (2) the attainment of a place in the engineering profession for ceramic engineers and (3) assisting brother members in finding jobs in the ceramic industries. It was agreed that the

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\* According to Greaves-Walker, Mark Ogan was 2nd Assistant Master Potter for the year 1903-04 rather than 1902-03 as shown here. It seems clear that Greaves-Walker erred in the year as Ogan had completed his studies in the spring of 1903 and had left the University.

organization should be strictly professional and not honorary and should be open to any student registered in the department. The name adopted was Beta Pi Kappa. The letters stood for the words Brick, Pottery and Cement, the Kappa being used because nobody knew which represented 'C' in the Greek alphabet."

"A badge was designed. This badge was identical to that now used by Keramos, except that the word, 'Keramos', has been substituted for the letters, 'B Π K' ..... the colors adopted were red and black."

**Beta Pi Kappa, 1903-06.** According to Greaves-Walker new members were pledged and initiated during the years 1903-06. It was established that the "selection of members was presumed to be based on good but not necessarily high scholarship, interest in ceramic engineering, the department and its activities, and personal qualifications. Scholastic standing was not considered because of the limited number of students in the small department."

The officers for the second year (1903-04) were:

- A. F. Greaves-Walker, Master Potter
- C. H. Griffin, 1st Assistant Master Potter
- Unknown, 2nd Assistant Master Potter
- C. G. Holmes, 3rd Assistant Master Potter
- L. H. Minton<sup>o</sup>, 4th Assistant Master Potter

Greaves-Walker relates that Professor Edward Orton, Jr., Head of the Department of Ceramic Engineering, "was elected an honorary member of Beta Pi Kappa" and that Orton "was the only honorary member elected by the original chapter. At the time he accepted membership he remarked that he thought the organization was a good idea."

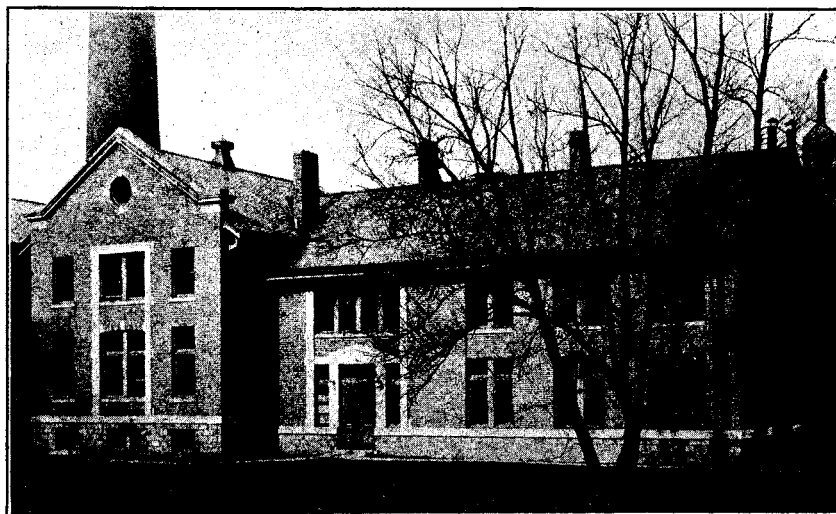
"Due to the small registration in the department and consequent lack of eligible material, the organization by the students of The Ohio State Ceramic Society and the fact that all of those originally interested in the organization had graduated or left the University, the Fraternity became dormant in 1906."

It is this writer's opinion that had Greaves-Walker remained in the Ohio area and not gone to work in far-off Utah, Beta Pi Kappa would not have become dormant — such was the character of the man.

### THE ORIGINAL KERAMOS

**Founding Alpha of Keramos, 1914-15.** It has been variously reported that the original Keramos Fraternity was organized February 10, 1915 at the University of Illinois. Chester C. Treischel<sup>o2</sup> wrote "I believe this (the founding of Keramos) all started in the first semester of the 1914-15 academic year." Greaves-Walker<sup>1</sup> states "A meeting to discuss the organization of a professional ceramic engineering fraternity had been held in the office of Professor R. T. Stull,<sup>o</sup> head of the Department of Ceramic Engineering, sometime prior to the above date (February 10, 1915) and the decision was reached to perfect such organization." The minutes of the

first meeting of record<sup>3</sup> though undated, unsigned and lacking a notation of place, precede those of the meeting of February 10. Further, it is hardly likely that 14 young men would casually or accidentally have come together without prearrangement and preplanning. To this point a portion of the minutes of this first meeting of record are quoted: "Mr. (Idris A.) Nelson<sup>o</sup> acting chairman, called (the) meeting to order. After discussing the possibility of organizing a professional fraternity and the benefits to be derived therefrom, each person present was asked to state his views upon the subject and whether he was for or against organizing such a fraternity. All present were in favor of organizing: Motion made by Mr. (Ralph R.) Danielson,<sup>o</sup> seconded by (Fremont J.) Hoehn, that we elect officers. Motion carried."



Ceramics Building, University of Illinois (1910). The original Keramos was organized here in 1914. (After A. F. Greaves-Walker, *The History of Keramos, 1902-1952*).

The fourteen who organized Keramos and can be designated as founding members\* were:

Loren C. Bow	John B. Lyon
Orello S. Buchner <sup>o</sup>	Walter C. Millsom
John A. Chase	Idris A. Nelson
Ralph R. Danielson	Hugh S. Robertson
Lister A. Deaver	George S. Schaulin
Fremont J. Hoehn	Chester C. Treischel
Silas C. Linbarger	Arthur E. Williams <sup>o</sup>

The officers elected that evening were:

I. A. Nelson, President	F. J. Hoehn, Secretary-Treasurer
C. C. Treischel, Vice President	L. A. Deaver, Sergeant at Arms

\* *Ralph R. Danielson was an assistant instructor and graduate student; all others were undergraduate students.*

And the committees appointed were:

Constitution:

J. B. Lyon, Chairman  
S. C. Linbarger  
H. S. Robertson

Pin:

W. C. Millsom, Chairman  
G. S. Schaulin  
A. E. Williams

Ritual:

L. A. Deaver, Chairman  
O. S. Buchner  
L. C. Bow

The minutes of this first recorded meeting contain no mention of the Fraternity's name. It does appear in the minutes of February 10, however, in such a manner as to indicate familiar usage. Nowhere in any of the minutes is any mention of why or how the name was selected. George K. Lowe<sup>4</sup> wrote "Keramos, the Greek term for clay, was chosen as the name of the Fraternity." Greaves-Walker states "The name of the Fraternity was suggested by Professor Stull because of its Sanskrit origin and its significance to ceramic engineers." These statements are in agreement with the recollections of Buchner<sup>5</sup> and Treischel both of whom were among the founders and had part in the selection. Finally, these unsigned minutes need only a cursory examination to establish that they were written by F. G. Hoehn, the first secretary.

It was at the meeting of February 10 when it was established that membership would be limited to 20, that membership in Keramos would not exclude membership in other fraternities and that Professors Ray T. Stull and Ralph K. Hursh<sup>o</sup> were elected the Fraternity's first honorary members. No mention is made of an "initiation," possibly because a ritual had not been adopted. Nevertheless, both honorary members were speakers at the April 27, 1915 meeting. Stull "spoke on the future prospects of (the) Fraternity and that in case another ceramic Fraternity be formed at some other University we should try to get them to affiliate with Keramos. *This chapter to be the Alpha Chapter.*"\* This explains the Chapter's persistent use of the term, Alpha of Keramos, when referring to the Illinois Chapter. An interesting sidelight on how times and circumstances alter matters is Greaves-Walker's<sup>1</sup> statement: "It is worthy of note that Professor Stull was a student in the Department of Ceramic Engineering at The Ohio State University at the time that Beta Pi Kappa was organized. He was asked to join the charter group but said he was not interested in such an organization."

Within these first few months the membership repeatedly turned to Stull for advice. It must have been good advice because in a surprisingly short time they had formulated and adopted a constitution, bylaws and a ritual. A badge was selected which, according to Lowe<sup>4</sup> consisted of a "gold palmette in a black field (which) was surrounded by ten pearls, making a very attractive emblem." The general appearance of the badge is shown below. The colors of azure blue and black were adopted. A schedule of semi-monthly meetings, a roll call and a system of required

\* *Minutes of the original Keramos*<sup>3</sup>.



attendance were established. Procedures for the election and initiation of new members were perfected. It was established that faculty members would be elected as honorary members, not as active members. Before the end of the term new members were elected and an initiation banquet held. In today's time of rampant inflation it is of interest to note that the motion authorizing this first banquet contained the stipulation that the cost was not to exceed 75 cents per person. These first 14 did a remarkably fine job. The new Fraternity was "off and running."



The palmette badge of the original Keramos. Photograph of a plaque awarded to Dr. Lane Mitchell in 1933 by the Illinois Chapter. (Courtesy Dr. Mitchell)

**Alpha's Expansion Efforts, 1912-25.** Almost from the Fraternity's inception the idea of expansion to other campuses runs through the records. A not unreasonable speculation might be that R.T. Stull's talk of April 27, 1915, suggesting that the Illinois chapter be the Alpha Chapter, implanted the expansionist concept into the fraternal thinking. Whatever the cause the idea takes form a few months later (February 22, 1916) when it was agreed to "get in touch with (the) Student Branch of (the) American Ceramic Society at Ohio State University to find out about installing a chapter there." Though the chapter minutes do not record the results, Treischel<sup>2</sup> wrote "Prior to the annual meeting of the (American Ceramic) Society in the spring of 1916 we learned that Ohio State had a fraternity\* similar to Keramos and R.K. Hursh was delegated to approach the O.S.U. faculty group at that meeting regarding the possibility of consolidation. As I recall O.S.U. was not interested." Nevertheless on January 9, 1917, a motion was passed to appoint a committee "to investigate the Ohio State Ceramic School with an idea of installing a chapter of Keramos there."

\* All efforts to identify this fraternity have been fruitless.

Again nothing seems to have happened. It is not unlikely that concern with what we now call World War I had something to do with it for in February the United States broke off relations with Germany and declared war on April 6. Enrollments in the colleges and universities fell sharply. Membership in the Chapter had dropped to seven by November and the last meeting of the academic year (March 20, 1918) had only six in attendance. It appears to have been the last meeting for two years. The next recorded was held March 10, 1920, and was devoted to the reorganization of the Fraternity. Only four members were in school.

It seems obvious that someone had referred to the past because two months later and now with 12 active members, the idea of expansion was revived and given a new name, "nationalization." To this end three members, Gordon Klein, Robert Twells and Earl Baker "were appointed to write to the different ceramic schools in regard to the matter." It would appear that after this postwar burst of activity the Fraternity declined into a period of somnolence which lasted until the year 1923-24 when the active membership jumped to 18. Nationalization was revived (October 9, 1923) by the appointment of a committee "to look into the matter." Here it seemed to have ended for that academic year. The fall of 1924 saw more forceful action being taken by the appointment (October 18) of a committee on nationalization consisting of John R. Grout, Jr., chairman, L. D. Tetterhoff and C. E. Parmelee,<sup>9</sup> Chapter President. At the November 17 meeting Grout reported "Ohio State seems to be our logical point at which to establish a chapter" and on February 12 "suggested the proper time to approach the Ohio State ceramic students would be during the meeting of the American Ceramic Society at Columbus." The report continues, "an informal committee of all members attending the convention was appointed." The Illinois Chapter minutes do not record what transpired at the convention; however, C. E. Parmelee<sup>6</sup> wrote of his recollections:

"I was president the following year (1924-25) and a group of us went to the annual meeting of the A.C.S. held at Ohio State University. We, of course, were job hunting; but talking with some of the Ohio State seniors, we found that they had an honorary group using Greek letters.\* We discussed a merger and formation of a national society. The Illinois group included myself, William Whitney and J.R. Grout; probably others. The idea was discussed with Professor Curruthers of O.S.U. and Professor Ralph Hursh of Illinois. Under their guidance both groups agreed to go ahead with a national fraternity. Since Keramos seemed more appropriate than Greek letters, Illinois became the first chapter. Later in the spring Jack Grout was sent to Columbus to act as the installing officer and Keramos nationally became a fact."

The minutes of the next Illinois Chapter meeting (March 9, 1925) records that Bro. Grout reports the installation of the Ohio State Chapter and lists the names of the charter members. Grout<sup>7</sup> has supplied a few

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\* *Again, the elusive O.S.U. fraternity. W.W.K.*

added details: "... on (an) occasion of a basketball game weekend ... I remember boning up on the ritual on the train (overnight pullman) ... we got the job done and became a National. The Ohio group had some kind of a local organization to start on."

**Beta Chapter of Keramos, 1925.\*** Virtually all of the information concerning the establishment of the Ohio (Beta) Chapter comes from the recollections of the Illinois (Alpha) Chapter's members and meeting minutes. It is with no small sense of disappointment that nothing has been learned about the "Greek letter group" so frequently referred to by the Illinois brethren. There is no question that a group of Ohio State University ceramic engineering students were installed as the Beta (or Ohio) Chapter of Keramos by J.R. Grout, Jr., official representative of the Illinois Chapter, on February 28, 1925, and that the charter members were:

Milard G. Ammon<sup>8</sup>  
 John A. Austin  
 Kenneth E. Buck  
 Clinton D. Clawson  
 Edward H. Watkins  
 Robert E. Gould  
 Darrel D. Loeblein  
 William M. Taylor  
 Drury D. Turner

Graves-Walker records that the first chapter officers were John A. Austin, President, and Drury D. Turner, Secretary-Treasurer.



Lord Hall, The Ohio State University (1906). Beta Chapter of Keramos was installed here in 1925. (Courtesy The Ohio State University).

\* The term "Beta Chapter" is in keeping with the records and usage of the Illinois (Alpha) Chapter from 1925 until the consolidation of Beta Pi Kappa and Keramos in 1932.

**Keramos, A Two Chapter National, 1925-32.** After the initial enthusiasm of the installation of the Ohio Chapter contact seems to have been lost. The Illinois Chapter made repeated efforts but with limited success as revealed by the following excerpts from the Chapter's minutes.

*December 11, 1925* "... no word had been received from the Ohio Chapter but that another letter would be written in an effort to get in touch with the sister chapter" and "Bro. (John G.) Baer said that on a recent visit to Ohio (State) University he made an effort to locate members or officers of the fraternity but that those connected with the Ceramic School seemed to have no knowledge of its existence."

*February 24, 1926.* "The chapter at Ohio was discussed and President (Luther D.) Fettroff reported that no word had been received from the sister chapter yet. He said he would write again in care of the Ceramic School at Ohio State."

*October 11, 1926.* "Professor (C.W.) Parmelee kindly offered to write to Professor (A.S.) Watts<sup>o</sup> at Ohio State in regard to Beta Chapter."

*November 1, 1926.* "A letter from Beta Chapter was read by the secretary."

This story of poor interchapter communications related by the Illinois Chapter minutes continues for several years. Unfortunately we have no input from the Ohio State Chapter. Ralston Russell<sup>9</sup> reports that no Ohio Chapter minutes prior to 1931 had been found and very little other material of the period remained in the files. Nevertheless, the Ohio Chapter had not been dormant, though poor correspondents. A check of the published roster of members<sup>10</sup> discloses an initiation record of three initiates in 1926, twelve in 1927, four in 1928, twelve in 1929, fifteen in 1930 and twelve in 1931 — a total of fifty-eight from installation in 1925 to consolidation in 1932. The Chapter even ventured into publication of a sprightly newsletter. Surprisingly two 1930 issues of its *Keramosia* were located by Dr. Arthur L. Friedberg<sup>o</sup> of the University of Illinois.

Two other prevailing themes were found through the Illinois Chapter minutes: the seemingly obscure role of the national officers and the apparent obsession of the Illinois Chapter with further expansion. These three "themes" are felt to be of significance to the totality of Keramos history; however, it must be appreciated that the Illinois Chapter carried on all normal chapter functions and a larger number of activities than many of today's chapters and they seemed to have done them very well. With this brief orientation let us continue with a few additional illustrative excerpts:

*March 17, 1927.* "A discussion was held on the expansion of the fraternity" and a motion was passed that "letters be sent to the heads of the departments at ... schools having curricula in ceramics....."

*May 3, 1928.* "J.J. Svec suggested that ... (correspondence) begin with those schools at which we have alumni or near which alumni are situated." His motion "that a letter be sent to all schools inquiring about organizations existing ... or their attitude about such organizations" was passed.

*May 16, 1928.* After the installation of the new president, Dwight G. Bennett<sup>o</sup>, retiring President Earl F. McDonald stated "that it was the duty of this chapter to elect the national officers next spring, reading from the Constitution...."

*January, 1929.* "A letter from A. J. Paul (Ill. '24) at Rolla School of Mines ... mentioned the possibility of making the 'Orton Society' of that school a chapter of Keramos." ". . . the secretary, Carl H. Zwermann to confer with Professor Hursh upon the advisability of the expansion of Keramos and to get all information possible concerning the ceramic departments at Rutgers and Rolla."

*February 21, 1929.* "President (D.G.) Bennett announced we have no national officers due to the neglect of Beta Chapter to elect them. As it is Alpha Chapter's turn in a few weeks, it was decided to wait ... " Discussion continued on ways and means of establishing chapters at Rutgers and Rolla. A committee was "appointed to draft a model petition for the use of prospective chapters."

*February 12, 1930.* "Professor Hursh suggested that arrangements be made between the chapters ... in closer contact by having an annual meeting."

*September 30, 1930.* "... Rolla ..., Rutgers, Alabama and Georgia Tech were the schools considered as possibilities (for expansion.)"

*December 9, 1930.* "President K.C. Lyon read a letter from Beta Chapter concerning ... Beta Pi Kappa, and the possibility of combining the two ...."

ter concerning ... Beta Pi Kappa, and the possibility of combining the two ...."

The reading of that letter completely changed the perspective of Alpha Chapter. From that time forward, until the merger was actually consummated 14 months later, Alpha Chapter's attention was concentrated on that impending event.

Very little information about the national organization and its activities during the period of 1925-32 has come to light. In fact, all of the information presently available consists of the minutes of three chapter meetings, two of which are quoted in part, *viz.*, those of May 16, 1928, and February 12, 1929.

The reader may feel that too much space has been devoted to the efforts of Alpha Chapter to "nationalize." However, the argument is offered that had these young men not shown the imagination and persistence in their dreams, plans and acts, probably neither Keramos nor the by now competing Beta Pi Kappa would have become the dynamic force later evidenced. In the next section the happenings of the other partner to the impending merger, Beta Pi Kappa, will be reviewed.

## REACTIVATION OF BETA PI KAPPA

For a fledgling organization at Ohio State University that officially

existed only from 1902 to 1906 to be reborn at North Carolina State College in 1925, can be termed a quantum jump. The activator was none other than Arthur Frederick Greaves-Walker.

**North Carolina Chapter, 1925-28.**<sup>11</sup> A. F. Greaves-Walker joined the faculty of North Carolina State College in September, 1924, and immediately proceeded with the organization of the Ceramic Engineering Department. Space was allocated and renovation begun, equipment procured or ordered, research programs outlined and students enrolled. Obviously considerable preplanning had been involved.

On March 31, 1925, five ceramic engineering students met with Professor Greaves-Walker for the purpose of organizing a professional ceramic engineering fraternity. "After many discussions and considerations, we decided to reorganize the Beta Pi Kappa Fraternity which was established at Ohio State University in 1902 and which has been dormant since 1906. (Having) reached this definite conclusion we pledge ourselves together for the upbuilding of Beta Pi Kappa (and) for the best interests of the Department of Ceramic Engineering and of North Carolina State College ...."<sup>11</sup>

At the next meeting, April 23, 1925, the five organizers, all of the class of 1928, elected themselves to the five offices. They were:

John A. Boren, Master Potter (President)

Robert B. Stamey, 1st Assistant Master Potter (Vice-President)

Lewis L. Chesson, 2nd Assistant Master Potter (Secretary)

Joseph H. Frink, 3rd Assistant Master Potter (Treasurer)

F. Stanton Hardee, 4th Assistant Master Potter (Herald)

"More ideals of the Fraternity were discussed and we decided to make scholarship one of our ideals and to establish closer bonds between the Department of Ceramic Engineering and the graduate" and "to maintain good feelings between the Department and men associated with the manufacture of any ceramic product."

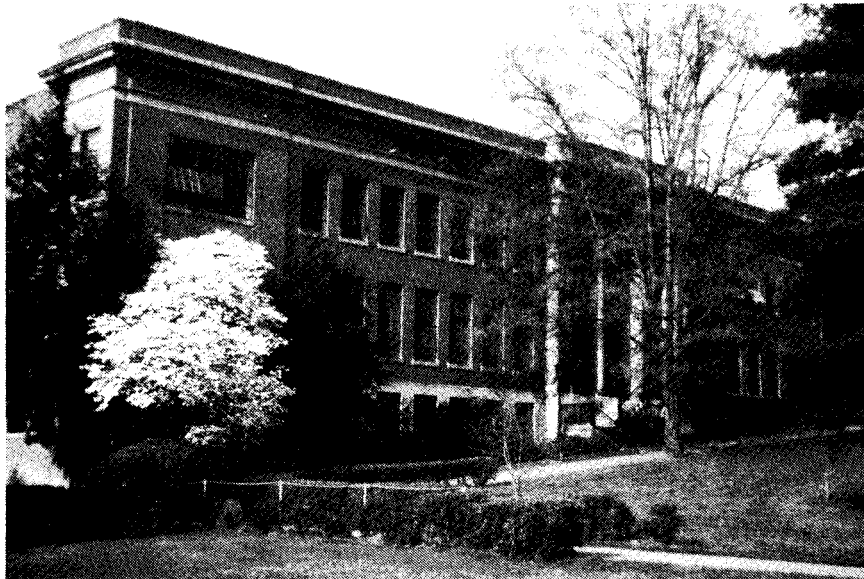
On May 19, 1925, the last meeting of the school year, the members decided "to wait until the next school year to draw up their constitution as the plans were to make a National Fraternity of it...." Thus, we find that the N. C. State Beta Pi Kappa members had the same aspirations and ambitions as the University of Illinois Keramos brothers.

In November of 1925 "Invitations were issued to the ceramic students of Iowa State College and Georgia School of Technology to join the B II K in forming a national fraternity." Also, "Alfred University ... had a group of ceramic engineering students that had formed a club and were seeking to join us. The fraternity accepted the club, the installation to take place sometime in the near future."

The Chapter met December 8, 1925, for the purpose of initiating the Chapter's first three candidates, Donald B. Hall<sup>o</sup>, Albert O. Terry and Allen B. Thomas. Hardee recorded the event somewhat emotionally, "The members present were J. A. Boren, R. B. Stamey, L. L. Chesson, Joe S. Frink and F. S. Hardee. A. F. Greaves-Walker was present as the faculty

member. "These members were the Charter members, all being present and possibly for the last time ever."

Expansion continued to dominate the Chapter's interest. On October 5, 1926, acting Master Potter, F. S. Hardee, "announced that it would be the aim of the fraternity to add three new chapters during the ensuing year." Active negotiations were carried on with an interested group at Iowa State College. By year's end (May, 1927) permission had not been granted by the Deans' Council of Iowa State.



Page Hall, N. C. State University (1921), home of ceramic engineering 1924-26 and 1954-date, where Beta Pi Kappa was reactivated in 1925. (WWK)

At the October 11, 1927, meeting Master Potter, Donald B. Hall of Hornell, N. Y., reported, after a visit to Alfred University that, he believed a chapter could be formed there. "A. F. Greaves-Walker was requested to write to Mr. (Eugene W.) Fulmer of that institution explaining the aims of B II K." In January, word was received that a group consisting of seniors and Dr. Charles F. Binns<sup>o</sup>, Director of the School, "had been sanctioned by the faculty and reported themselves as ready to affiliate with Beta Pi Kappa in the formation of a National Society" and "suggested that we each send delegates to a convocation to be held in Atlantic City, February 6-8, (1928)." The North Carolina Chapter voted unanimously to affiliate and elected A. F. Greaves-Walker "as delegate with full power to act ... in all matters except that the name of the fraternity could not be changed and the objective stated must remain the same ...." He was authorized to cast ballots for the following officers to fill the National offices for the year 1928.

- A. F. Greaves-Walker, Grand Master Potter
- D. B. Hall, Grand 2nd Assistant Master Potter
- W. L. Stafford, Grand 4th Assistant Master Potter

Also in January, letters had been received from ceramic groups of Georgia Institute of Technology and Rutgers University stating that they were too small and not ready to organize.

**Delta Pi Alpha, Alfred University, 1927.** On December 8, 1927, a group of ceramic engineering seniors of the New York State School of Clay Working and Ceramics (renamed the New York State College of Ceramics) at Alfred University formed a professional ceramic engineering fraternity. It existed as an independent local fraternity for only two months when it affiliated with North Carolina State College's Beta Pi Kappa and became the New York Chapter of Beta Pi Kappa. Despite its very short life, or perhaps because of it, there has been considerable confusion concerning its name. Seemingly authoritative sources used two different names, Delta Phi Delta and Delta Pi Kappa. Dr. E. E. Mueller<sup>o</sup> discovered a third name, Delta Pi Alpha, had been published.<sup>12</sup> With three possible names, a search through the some 25,000 pages of old records<sup>13</sup> was instituted which resulted in the discovery of a handwritten note from A. F. Greaves-Walker to Lane Mitchell<sup>o</sup> dated July 26, 1940, transmitting "the original Constitution and Ritual of Delta Pi Alpha local at Alfred that became the Alfred (New York) Chapter of Keramos." The documents are typed on the reverse side of Theta Kappa Nu, Alfred, N. Y. stationery. Another little mystery solved!



The Ceramics Building, The New York State School of Clay Working and Ceramics, Alfred University, (1902, rear wing 1913) where Delta Pi Alpha was organized in 1927. (Courtesy Industrial Publications, Inc.)

According to these documents, the name Delta Pi Alpha stood for the Greek words Demiourgia, Polumaphia and Adelphotes which meant Draftsmanship, Scholarship and Brotherhood, a very commendable name



and slogan. The founding members were:

William G. Collins	Revere H. Saunders
Desmond E. Dewitt	Norman H. Stolte
Eugene W. Fulmer	Francis J. Williams
Daniel W. Luks	and Charles F. Binns, honorary member.

The officers were:

Francis J. Williams, President  
 Desmond E. Dewitt, Vice President  
 Eugene W. Fulmer, Secretary

**Beta Pi Kappa as a National, 1928-32.** Delegates of the two fraternities appear to have met in Atlantic City on February 7, 1928, agreeing to hold a convocation on the following day. The official delegates were:

A. F. Greaves-Walker, Beta Pi Kappa  
 William G. Collins, Delta Pi Alpha  
 Revere H. Saunders, Delta Pi Alpha

with Greaves-Walker acting as temporary chairman. It was agreed that the new National fraternity would adopt the name, badge, ritual, coat of arms and colors of Beta Pi Kappa. National officers elected to serve until the next convocation to be held a year hence were:

A. F. Greaves-Walker, N.C. State, Grand Master Potter  
 Charles F. Binns, Alfred University, 1st Assistant Master Potter  
 Donald B. Hall, N.C. State, 2nd Assistant Master Potter  
 Francis J. Williams, Alfred University, 3rd Assistant Master Potter  
 William L. Stafford, N.C. State, 4th Assistant Master Potter

Beta Pi Kappa too had become a "national."

The second convocation<sup>14</sup> was held in Chicago on February 6, 1929. Norman H. Stolte<sup>o</sup> was one of the official delegates of the New York Chapter. At this second convocation, new national officers were elected to serve for a two-year term, viz., 1929-31. They were:

A. F. Greaves-Walker, N.C. State, Grand Master Potter  
 Norman H. Stolte, Alfred University, 1st Assistant Master Potter  
 Donald B. Hall\*, N.C. State, 2nd Assistant Master Potter  
 Francis J. Williams, Alfred University, 3rd Assistant Master Potter  
 William G. Collins, Alfred University, 4th Assistant Master Potter

The 3rd national convocation<sup>14</sup> was held in Cleveland, Ohio, on February 22, 1931. Largely because of negotiations in progress concerning a possible merger with Keramos, the officers were re-elected.

### THE ERA OF TWO NATIONALS

It has been shown that both Beta Pi Kappa and Keramos had strong desires to expand their respective brotherhoods by establishing chapters in most, if not all, ceramic engineering departments. In Alpha (Illinois)

\* Donald Hall died of pneumonia on August 3, 1930. A. McKinley Greaves-Walker was appointed by the Executive Council to complete Mr. Hall's term.

Chapter of Keramos, activity in this direction continued until December 9, 1930, when the first letter concerning merger with Beta Pi Kappa was received from the Beta (Ohio) Chapter.

The North Carolina Chapter of Beta Pi Kappa, as of April 24, 1928\* was pursuing an active program of expansionism. No information on this point has come from the other two chapters, Keramos of Ohio and Beta Pi Kappa of New York.

As previously reported, minutes between this date and January 12, 1932 had been lost and no correspondence has survived.

**Efforts to Merge 1928-32.** A. F. Greaves-Walker has stated<sup>1</sup> that he believed "there was no necessity in such a limited field ... for two professional fraternities having practically the same aims and objectives." As a consequence, and as early as 1927, he began efforts to "effect a consolidation ...." Most of the details of what transpired during this period are lost. However, Greaves-Walker wrote that "In 1930 these efforts (to merge) resulted in the appointment of committees from both organizations which were instructed to explore the possibilities ...." The Illinois Chapter seemed to have had no inkling of these developments prior to the December 9, 1930, reading of Beta Chapter's letter. Undated minutes (probably January, 1931) record that a meeting was planned of the two Keramos chapters, which was to be followed by a joint meeting of the two fraternities, during the time of the American Ceramic Society's convention to be held in late February, 1931, at Cleveland, Ohio. On February 19, and prior to the Cleveland meetings, Professor Hursh read to the Illinois members a proposal he had received from Professor A. S. Watts, head of the Ceramic Engineering Department of Ohio State University, concerning the prospective consolidation. Unfortunately, none of the resultant discussion was recorded nor were the provisions of the proposal.

At the Illinois Chapter's meeting of March 10, 1931, Professor Hursh presented an account of the Cleveland meetings. At the joint meeting of Keramos and Beta Pi Kappa the basis for merger was set forth and the new fraternity, if established, would be a professional organization concerned with scholarship.

Details of procedure and substance were to be worked out by the committees, each chaired by one of the four chapter faculty advisors, to which each chapter would appoint a member. The four committees and their respective chairmen were:

Constitution, A. F. Greaves-Walker, NCSC

Name and Ritual, A. S. Watts, OSU

Eligibility, R. K. Hursh, U of Ill.

Insignia, C. F. Binns, Alfred U

The four committees were to report at a meeting to be arranged at the time of the next (1932) American Ceramic Society Convention. Two points made by Greaves-Walker<sup>1</sup> need to be added. "George A. Bole<sup>o</sup> was largely responsible for finally bringing the two groups together" and "consolida-

tion was practically agreed upon" at the Cleveland meeting.

**Consolidation, 1932.** The merger convocation<sup>15</sup> was held as scheduled. The official delegates for Keramos were:

Richard G. Mills, Illinois Chapter  
 Cullen W. Parmelee, Illinois Chapter  
 Ralph R. Rhodes, Ohio Chapter  
 Milton H. Waldschmidt, Ohio Chapter

And for Beta Pi Kappa:

Meridith Barton, New York Chapter  
 N. Dale Lockwood, New York Chapter  
 William C. Bangs, North Carolina Chapter  
 Charles C. Morrison, North Carolina Chapter

All meetings were held in the Willard Hotel.

Because only one Keramos delegate, R. R. Rhodes representing the Ohio Chapter, attended the February 8 meeting, no business was transacted and only informal discussions were held. A. F. Greaves-Walker, Beta Pi Kappa, presided.

On February 9, with A. S. Watts of Keramos presiding, reports were received. The report on constitution was presented. Suggested changes by the Illinois and Ohio delegates were acted on. Quoting from the minutes,<sup>15</sup> "It being found impossible to agree on the name, badge and eligibility sections a committee composed of C. W. Parmelee, Illinois, W. C. Bangs, North Carolina, R. R. Rhodes, Ohio, and M. Barton, New York, was appointed to reach an agreement and report the following day."

With A. S. Watts again presiding, the convocation reconvened on February 10. The report of the special committee with minor modification was unanimously adopted. The convocation delegates then enacted the following:

"The name of the Fraternity shall be KERAMOS and the pass and motto shall be those of BETA PI KAPPA.

"The badge of the Fraternity shall be that of Beta Pi Kappa with the letters 'BIIK' replaced by the word 'KERAMOS' inscribed in Greek letters, the first being upper case and the balance lower case."

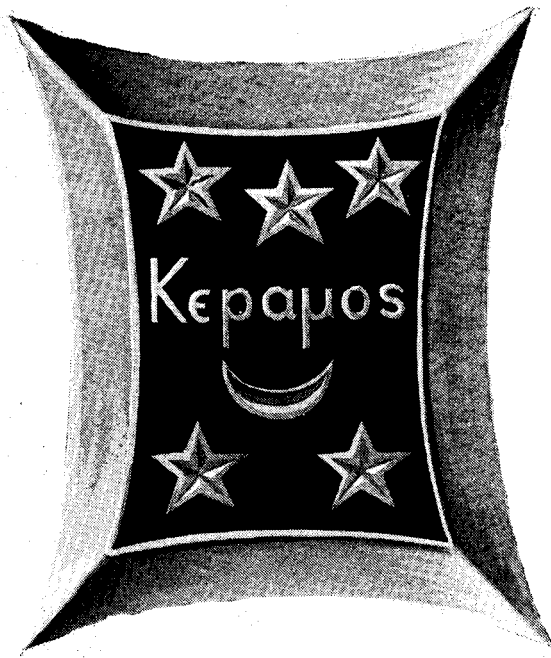
"Dr. Charles F. Binns was authorized to design the coat of arms, pledge button, seal and ribbon" and to act without referral to the fraternity.\*

The constitution and bylaws, as amended, were adopted. A nominating committee composed of C. R. Amberg, W. C. Bangs, M. Barton and R. R. Rhodes was appointed. Their report placed in nomination:

A. F. Greaves-Walker, Grand President  
 G. A. Bole, Grand Vice President  
 R. K. Hursh, Grand Secretary  
 C. F. Binns, Grand Treasurer  
 A. S. Watts, Grand Herald

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\* As it turned out, the coat of arms selected was that of Beta Pi Kappa with "Keramos" substituted for "Beta Pi Kappa" on the lower ribbon.<sup>1</sup>



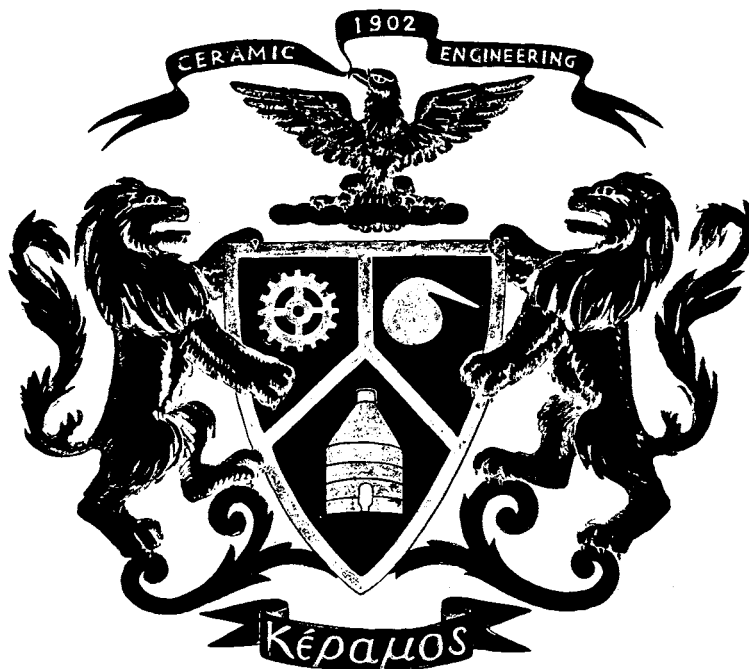
The Keramos badge as modified from the Beta Pi Kappa badge. Officially adopted February 10, 1932. (Photograph of a pastel by the late Professor J. D. Paulson, N. C. State University.)

The report of the committee was unanimously adopted. Chairman *pro tem* A. S. Watts turned the meeting over to the just-elected president, A. F. Greaves-Walker. After a few operational decisions "the delegates, members and alumni present came forward and signed a copy of the constitution as a mark of ratification\*." According to the minutes "the members and alumni at the ratification" in addition to the official delegates were:

Elwin H. Atwood, North Carolina  
 Henry E. Craven, Jr., North Carolina  
 William L. Fabianic, New York & North Carolina  
 Tom Falknor, Ohio  
 Arthur F. Greaves-Walker, Ohio & North Carolina  
 A. McKinley Greaves-Walker, North Carolina & Ohio  
 Wilbur F. Green, New York  
 George J. Grimes, North Carolina  
 John H. Isenhour, North Carolina  
 Clarence W. Merritt, New York  
 Murray J. Rice, New York  
 Karl Schwartzwalder, Ohio  
 Arthur S. Watts, Ohio

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\* Regrettably this copy of the constitution has not been found in the Fraternity's records and is presumed to be lost.



The Keramos coat of arms as modified from that of Beta Pi Kappa. Adopted February 10, 1932. (Photograph of an oil painting.)

### THE END OF AN ERA

The symbolic signing of a copy of the new constitution "as a mark of ratification" was an act of far greater significance. In reality it marked the end of an era principally characterized by efforts directed toward growth. In retrospect it seems obvious that there was really nowhere to expand. The departments other than these four, now joined through the new Keramos, were too small or lacked the essential boldness, energy or dedication to develop and to maintain a chapter.

The desire, nay, the demand for expansion remained. However, it was to take a new form and new scope - that of seeking professional recognition. The first step had been taken that Wednesday nearly a half century ago. A. F. Greaves-Walker had been placed in charge. His tenure as Grand President would last only two years but his influence was to dominate the fraternity for another twenty. His imprint continues to this day.

## REFERENCES

- <sup>1</sup> A. F. Greaves-Walker, *The History of Keramos, 1902-1952*, Edwards Brothers, Inc., Ann Arbor, Michigan, 1952. 12 pp.
- <sup>2</sup> C. C. Treischel, personal communication, February 13, 1974.
- <sup>3</sup> Bound ledger volume of hand written Illinois Chapter of Keramos minutes (1914-34), Ceramic Engineering Department, University of Illinois, Urbana, Ill. 290 pp.
- <sup>4</sup> G. K. Lowe, *History of Alpha of Keramos*, unpublished typescript, 1932. 4 pp.
- <sup>5</sup> O. S. Buchner, personal communication, December 15, 1973.
- <sup>6</sup> C. E. Parmelee, personal communication to James A. Nelson<sup>o</sup>, December 18, 1973.
- <sup>7</sup> J. R. Grout, personal communications of November 1, 1964 and December 20, 1976.
- <sup>8</sup> M. G. Ammon was not included in Greaves-Walker's list of charter members but is confirmed by the Roster of Keramos Fraternity 1953.
- <sup>9</sup> Ralston Russell, Jr., personal communication, February 15, 1978.
- <sup>10</sup> Roster of Keramos Fraternity 1953, Industrial Publications, Inc., Chicago, Ill., 1953. 66 pp.
- <sup>11</sup> Minute Book, North Carolina Chapter, Beta Pi Kappa (Keramos after February, 1932). These records have been preserved and are in the possession of Dr. Robert F. Davis, Department Materials Engineering, N. C. State University, Raleigh, N. C. Dr. Davis, personal communication, March 3, 1978 wrote that the minutes contain the statement that "the book containing the minutes between April 24, 1929 and January 12, 1932 were lost." Unfortunately, this roughly coincides with the life span of Beta Pi Kappa as a national fraternity.
- <sup>12</sup> "New York State School of Clay-Working and Ceramics," *The Clay Worker*, Vol. 89, P. 395, 1928.
- <sup>13</sup> Sixty-five years accumulation of correspondence and reports in the custodianship of the National Herald and soon to be placed for safekeeping in the Archives of the University of Washington, Seattle.
- <sup>14</sup> A. F. Greaves-Walker, *History of Beta Pi Kappa*, unpublished typescript, c. 1932. 3 pp.
- <sup>15</sup> A. F. Greaves-Walker, Sec. pro tem., *Minutes of the Merger Convocation of Keramos and Beta Pi Kappa Professional Ceramic Engineering Fraternities*, held in Washington, D. C., February 8th, 9th and 10th, 1932, unpublished typescript. 5 pp.

## FACULTY INFLUENCE

From the very beginning both of the two founding fraternities had placed the ultimate authority in the hands of the student members of the chapter(s). Unfortunately, very little is known concerning the actual extent of faculty influence during the early years of either.

### BETA PI KAPPA, 1902-32.

Greaves-Walker<sup>o1</sup> makes only one reference to faculty in the old (1902-06) Beta Pi Kappa and that pertained to Professor Orton's ° election to honorary membership in 1904. From the minutes of the North Carolina Chapter of Beta Pi Kappa (1925-32) it is quite evident that the chapter was very definitely under the benign influence of Professor Greaves-Walker. During the "National Period" of Beta Pi Kappa a few student members were elected to national office; *viz.*, D. B. Hall° and W. L. Stafford° while undergraduates at N. C. State College, F. J. Williams° while undergraduate at Alfred University, continuing during his graduate study years at Ohio State University, and N. H. Stolte° during his two graduate years at N. C. State College.

### THE ORIGINAL KERAMOS, 1914-32

Keramos members jealously guarded student control of their organization by prohibiting election of faculty members to active status. Nevertheless, they frequently called on their faculty (Honorary) members for advice. Nothing seems to be known concerning the national officers of the period (1925-32) other than two chapters took turns electing them.

### THE POSTMERGER PERIOD, 1932-62

The Constitution and Bylaws adopted at the time of the merger (Feb. 1932) provided that the "Grand (National) officers may be elected from either the active, non-resident active or alumni membership of the Fraternity" and specifically excluded honorary members from "the right of suffrage or the privilege of holding office."<sup>2</sup> Nevertheless, during the 30 years (1932-62) that these documents were in force not one active member was elected to national office and no less than six honorary members, Andrews°, Binns°, Hursh°, King°, Koenig° and Sherwood°, had been elected to at least one, and most to several, national offices.

Another practice which evolved during this period was for each chapter to have a *faculty advisor*, either elected by the chapter members or appointed by the department chairman despite the fact that there was no mention of such a position in either the Constitution or the Bylaws then in force. Perhaps the establishment of faculty advisors was justified under the general provision that the "management of the Fraternity shall be vested in an Executive Council . . ." Legally or not, a conscientious advisor did enhance the desired stability, continuity and direction within the chapter.

### MODERN KERAMOS, 1962-77

In 1960 the Fraternity was incorporated under the statutes of North Carolina. The Articles of Incorporation replaced the 1932 Constitution necessitating a complete rewrite of the Bylaws.<sup>3</sup> The discrepancies between *authority* and *practice* discussed above were eliminated. Specifically, the new Bylaws state that "only teaching staff, alumni and honorary members of the Fraternity are eligible to be elected (national) officers." Thus, active members were no longer allowed to hold national office but honorary members became eligible. Further, the 1962 Bylaws stipulate that "...each chapter shall elect ... its Faculty Advisor."

Since the time of merger, the course of Keramos has been influenced, if not directed, by the alumni faculty members. It should be emphasized that every precaution has been taken to keep the ultimate authority in the hands of the student chapters through their elected delegates to the annual national meetings. The current Bylaws provide that "voting on issues...and the election of (national) officers shall be carried out by (the) delegates ....." Notwithstanding, the students have in large part left the development and execution of plans, particularly those of professional significance, in the hands of their more mature members; i.e., the faculty members.

**Academic vs. Industrial Alumni Influence.** During A. F. Greaves-Walker's most active and influential years in the Fraternity, c. 1928-48, he repeatedly pushed for top leadership to be kept in the hands of industrial alumni by promoting their election to the national presidency and/or vice-presidency. In this he was extremely successful. During the period bounded by the merger and World War II (1932-42) four out of five in each of these offices were recruited\* from industry. Understandably, during the war period (1942-48), when the chapters were inactive, all national officers were faculty members. The precedence thus created was followed for the next 14 years. With the adoption of the new Bylaws (1962) the national presidency has been shared equally between faculty and industry alumni.

The probable reasons for the strong faculty influence on the Fraternity, especially since World War II, can be briefly summarized as (1) the built-in, close, almost daily contact between the student and faculty members in contrast to the relative remoteness of the industrial alumni, (2) the parallelism between faculty interests and local chapter activities in contrast to the usually less provincial objectives, many outside of student purview, of industrialists, (3) the high probability that the efficiency oriented, decision-making industrialist cannot live comfortably with the never-ending delays, haphazard handling of correspondence and the seemingly total disregard for deadlines which seem to be a part of Academe and certainly is a characteristic of any group that meets only infrequently, and finally (4) the policy of officer succession, often termed 'moving through

\* See Appendix III for a listing of national officers.



the chairs," tended to chill the ardor of the action-oriented industrial man. With the adoption of the 1962 Bylaws, some of the more obnoxious elements of the Fraternity's operations were removed making national office more attractive. At least, the results so indicate.

Ceramic engineering, as a profession, is fortunate that the Fraternity developed with a strong, mature leadership. It is extremely improbable that a student member could have fulfilled the role played by the alumni members, particularly that of the national officers, during the fight to gain professional recognition for ceramic engineering. These roles required experience and acumen. And that is what the Fraternity and the whole ceramic engineering profession received from these dedicated men.

### REFERENCES

<sup>1</sup> A. F. Greaves-Walker, *The History of Keramos, 1902-52*. Edwards Brothers, Inc., Ann Arbor, Michigan, 1952. 12 pp.

<sup>2</sup> Constitution of Keramos, Professional Ceramic Engineering Fraternity. Adopted Feb. 10, 1932.

<sup>3</sup> Keramos, Professional Ceramic Engineering Fraternity Bylaws. Presented to the Convocation of Apr. 24, 1960 and adopted by the Convocation of Apr. 29, 1962.