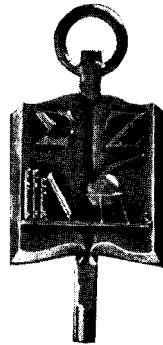


# THE SIGMA ZETAN



VOLUME XXI

SAN ANTONIO, TEXAS, DECEMBER 1949

NUMBER 1

OUR LADY OF THE LAKE COLLEGE

## THE SIGMA ZETAN

Official Organ of SIGMA ZETA  
NATIONAL OFFICERS

National President.....	ROBERT L. SHELLEY, <i>Xi Chapter</i>
National Vice-President.....	MERLE H. AHRENDT, <i>Upsilon Chapter</i>
National Recorder-Treasurer.....	GILBERT W. FAUST, <i>Zeta Chapter</i>
National Historian.....	STANDLEIGH M. MCCLURE, <i>Beta Chapter</i>
National Editor.....	SISTER MARY CLARENCE, <i>Sigma Chapter</i>
Past National President.....	CHESTER W. BENNET, <i>Kappa Chapter</i>

### A MESSAGE FROM OUR NATIONAL PRESIDENT

Greetings, brothers in Sigma Zeta! May I wish for each of you as individuals a year of real growth in the sciences and mathematics, and for each chapter a year of outstanding service.

In this 25th year as a National Honorary Society it is well that we pause and examine our past. Have we as a society succeeded in achieving the purposes for which we were originated? We succeed only as our separate chapters succeed. Any chapter succeeds if it is of real service to its members and to the school of which it is a part.

Let each one of us give what he can to make his chapter a truly successful one during this year. Let's be on hand at the next Conclave with a goodly delegation and with the best of our student papers and exhibits. Let's be real competitors for the Founders Cup, awarded each year to our outstanding chapter. If everyone does his part this Conclave on the 25th Anniversary of our existence can easily be the best one of all time. Let's make it so!

Robert L. Shelley  
National President

### STUDENT PAPERS PRESENTED AT THE NATIONAL CONCLAVE OF SIGMA ZETA APRIL, 1949

The papers delivered at the National Conclave of Sigma Zeta, held at Stevens Point, Wisconsin, were interesting to all in attendance. Much fine information had been collected and organized by these youths. Some showed a considerable degree of research. All who participated are to be commended for their fine endeavor.

As a group, we should look forward to a higher level of achievement each year. Therefore, we are expecting finer and better papers next year, if that be possible.

Claude Good  
Upsilon Chapter

## MODERN ACID—BASE THEORIES

By Robert Cozine, Kappa Chapter

The earliest theory of acids and bases was proposed by Lavoisier, about 1790. He believed that oxygen was the element which determines acidity or basicity. An English chemist, Davy, after fruitlessly trying to find the oxygen in HCl, decided that hydrogen might be the "acidifying principle". In 1887 Arrhenius proposed that an acid was a hydrogen ion source *in water*. Carrying out the hydrogen idea, Bronsted and Lowry independently proposed, in 1923, that a Hydrogen donor was an acid, a Hydrogen acceptor a base.

Franklin, Germann, and others developed the solvent system theory. According to this theory, an acid is any substance which has a cation in common with the solvent, a base any substance which has an anion in common with the solvent. G. N. Lewis in 1923 published what is called the electronic theory of acids and bases. An acid, to Lewis, is an electron—pair acceptor; a base is an electron—pair donor.

The latest theory was proposed in 1939 by a Russian chemist, Usanovich. His theory emphasises electrons too, but it groups oxidation—reduction reactions into the same class as acid—base reactions.

Of these theories, five are in use today—the electronic theory, the Hydrogen or proton theory, the theory of Usanovich, the Arrhenius, and the solvent system theories. All these theories have their merits, but the only one which seems to fit *all* the experimental data is the electronic theory. The Lewis, or electronic theory, considers alcohols, ethers, amines, ketones, and many other compounds to be bases because of their electronic configuration. For the same reason, aluminum chloride, mercuric chloride, etc. are acids. Simple experiments bear out these conclusions.

### MALARIA IN THE WORLD TODAY

Harold Onkst, Xi Chapter

This paper was originally intended to be a study of the malaria problem among the veterans at Ball State Teachers College, Muncie, Indiana. To obtain information pertaining to this disease among the veterans, the writer first consulted the Student Health Service. Unfortunately, no records concerning the incidence of malaria had been kept. Next, the Veterans Administration on campus and the Ball Memorial Hospital laboratory were consulted. Neither of these places had records pertaining to the prevalence of malaria among veterans.

Consequently, information for this paper was obtained from literature dealing with malaria and from people who have actually had the disease or have had close contact with the disease. Periodicals and books dealing with medicine were the chief literary sources. For the section dealing with malaria in Indiana, several volumes of *Proceedings of the*

*Indiana Academy of Science* were consulted. Of special interest was an interview with Daniel Johnson, a veteran officer of the India and China theaters. At the present time Mr. Johnson is in charge of the bio-chemical division of the laboratory at Ball Memorial Hospital. Several veterans who were known to have malaria were also interviewed.

The more important topics treated in this paper were: the prevalence of the disease throughout the world, with special emphasis on the United States and particularly in Indiana; a discussion of the characteristics of the disease; the interview with Mr. Johnson; a personal case history of a veteran; and some of the latest developments in the medication of malaria.

Although this writer was unable to get the information he was seeking, due to inadequate records pertaining to malaria among the veterans at Ball State Teachers College, he still believes that such a study on any college campus would be both interesting and informative to persons concerned with this problem.

## THE SEDIMENTATION RATE OF THE RED BLOOD CELLS

Lawrence Groh, Xi Chapter

The centuries-old search for an explanation of the sedimentation phenomenon of red blood corpuscles shows a pattern in the sciences similar to the formation of concentric waves seen when a pebble strikes the surface of a pond. The first ripple made its appearance with the Hippocratic school of medicine in the 4th Century B.C. Variations in the suspension stability of erythrocytes probably led to the development of the Greek humoral theory of medicine. This theory was based on the appearance of four distinct layers in a column of blood before clotting could occur in the presence of certain diseases.

The appearance of the four layers or humors was generally considered the cause of disease until Virchow, a 19th Century pathologist, firmly established the localistic-solidistic school of medicine. The humoral theories then fell into disrepute, and it was not until 1918 that the sedimentation phenomenon was rediscovered by Fahraeus, a Swedish pathologist. The second wave now appears as an attempt to explain this phenomenon by a study of the physical factors involved. Several physical factors such as the bore and length of the tube containing the blood, temperature, and relative concentration of erythrocytes were found to be involved. However, Fahraeus showed that the radius of the falling particles remained the only variant when the physical conditions of the test were such that Stokes' Law of Settling Particles would apply. The radius of the particles was found to vary because of the rouleau formation of erythrocytes, a tendency for the cells to aggregate into chains resembling stacks of coins.

The sedimentation test soon became very popular with physicians as

a nonspecific test for the presence and intensity of morbid processes within the body. Excessive refinements in the test without evidence of practicability led to a reaction which introduces the third wave in the attempt to explain the phenomenon. For the test to be of maximum value, the cause of rouleau formation needed an explanation, and this was and still is being sought within the field of chemistry.

The great majority of investigators agree that the chief cause of rouleau is an increase in the amount of easily precipitated protein fractions, the serum globulin or fibrinogen or both. As a result of Hirschboeck's recent research a new factor possessed by the erythrocyte has been introduced. Hirschboeck was unsuccessful in his attempt to explain rouleau formation as a flocculation reaction between the plasma proteins, fibrinogen and globulin, and the lecithin of the erythrocyte surface. However, his experiments led him to conjecture that the erythrocyte surface has a lecitho-fibrinogen or lecitho-globulin surface that in the presence of increased amounts of fibrinogen or globulin in the plasma becomes dehydrated with rouleau formation resulting.

The search for an explanation of the sedimentation phenomenon has advanced from the humoral concept of medicine to the investigation of the physical factors involved and up to the present date, at which time research on the chemistry involved has not yet conclusively revealed the explanation. Perhaps further work in the field of colloidal chemistry will soon reveal an explanation of this phenomenon that has intrigued physicians since the time of Hippocrates.

## UTILIZATION OF WAR SURPLUS RADIO GEAR

Charles K. Johnson, Mu Chapter

War surplus means a variety of things to anyone. The war ended and the army and navy had a stock of items that they couldn't use. They couldn't give it away nor put it on the civilian market, so they distributed it to the schools throughout the nation. The gear in its entirety would have been wonderful to receive, however, this was not the case. Nothing seemed to fit. That is looking on the more dismal side though. Much of the equipment can be converted to useful instruments in the laboratory. Some of it without any additional expenditure. We have found that the easiest way is to select a piece of equipment and then to look up in some radio magazine to see if they have converted it to normal operation. A good example of this is the ARC - 5, BC - 453, or the SCR - 74, (It is known by any of these names). By building a small power supply and making a few minor changes in the adapter unit, we have a radio receiver of exceptionally high selectivity and high sensitivity.

Another example of conversion is the power supplies. In some

cases they were already suited for 110 volt A. C. while these required only a little checking, others required a rewiring filament job or some such minor changes.

In summary it is our suggestion as we have found by experience, that cataloging the surplus gear, and then checking with some of the ham radio magazines, one can find easy and simple ways of converting this gear to good instruments in the laboratory.

## GEIGER-COUNTER DEMONSTRATION

Dale Endter, Kappa Chapter

A short explanation concerning the operating principles of the Geiger counter was first given. It was then shown that the apparatus could indicate the presence of radioactive materials and cosmic rays. As the apparatus used was of the demonstration type, the presence of radio active materials and cosmic rays was registered on the counter as a click in the loud speaker, as a flashing light, and as direct counts per minute on a meter. It was also shown that the Geiger counter could detect the radioactivity of the luminous type paint used on some watch faces. After the demonstration, some of the many uses of the Geiger counter were discussed. These uses include; detection of X-rays, cosmic rays, radioactive materials or any other ionizing radiation that will penetrate the tube, research in cosmic rays and nuclear physics, measuring the intensity of any of these radiations, and determining the intensity of cosmic rays in any given direction.

Model SU-4 Radioactivity Demonstrator, manufactured by Tracerlab Incorporated, 55 Oliver Street, Boston 10, Massachusetts, was used in this demonstration.

## THE PROCESSING OF CRUDE PETROLEUM IN MANUFACTURE OF GASOLINE

Mason Holmes, Beta Chapter

Gasoline is the most important of the by-products of refining of Petroleum. It is the lightest of the condensates obtained with a specific gravity between .624 and .667. Gasoline as turned out by the principal refineries is between C4 to C11, but usually C5 to C8 for a better grade.

Gasoline is obtained in three ways, the first of which is natural gasoline. This is gasoline in gas form. This gas is found in the oil well under pressure. The gas is condensed under reduced pressure where the gasoline fraction is most of its make-up.

The second is straight run gasoline. It is produced by raising the temperature of the petroleum between 36 degrees F. and 300 degrees F.

Between these temperatures the gasoline fraction is given off as gas. It is then condensed as gasoline which is about 20 - 25% of original crude.

The last process is called cracking. There are two types of cracking, "Thermal" and "Catalytic". The charging stock used is the residue after straight run gasoline is given off. By this process molecules of great molecular weights are broken down into substances which fall into the gasoline fraction Temperature reaching 1000 degrees F. and pressure up to 600 lbs. per sq. inch; or a catalyst of alumina silica gel are used to break up these large molecules. By the invention of this process 80 - 85% of the crude can be made into gasoline.

Gasoline can be made more useable by adding an eight carbon substance "iso-octane" and "tetra-ethyl-lead" to produce smooth burning, quick starting, with a high anti-knock quality.

## THE PHI PROJECT

Read by Richard M. Johnson, Phi Chapter

This paper concerns a project instituted by Phi Chapter of Sigma Zeta on Sept. 28, 1948. The chapter acting on the suggestion of Professor J. A. Rinker, Professor of Physics at Eureka College, undertook a project to mark objects and articles of a historical and scientific nature which were permanent constituents of the Eureka College campus. A definite system was set up to insure the consequent marking of any future additions to the campus. The objects to be marked included memorial trees, class trees, a petrified log from Arizona, ivy from Alexander Campbell's grave, landscaping of the outdoor theater contributed by four graduating classes, and other articles of significance. These monuments were to be marked in some permanent manner by the committee appointed to carry out the project. It was decided that the scientific memorials should be marked first.

After ironing out the technical road-blocks, the project began with a survey of the campus by a class in surveying conducted by Prof. Rinker. A plat showing locations of objects to be marked was completed. The title decided for the project was "Campus Marker Project", and completed sections of the project were to be numbered consecutively. Pertinent information regarding each marker was then filed as a record of the monument.

Upon the approval of the President of the college, "Campus Marker No. 1" was started as spring permitted and completed during the past month. The record of "C.M. No. 1" included in our files follows. This is meant to show to some extent an example of the work done at Eureka College by our chapter on this project.

C.M. No. 1, Petrified (Jasper) Log from Arizona  
(*Araucarioxylon Arizonicum*)

This tree was a conifer, either a sequoia or a redwood. It lived under semi-tropical climatic conditions about 140 million years ago during the Triassic Period, in the time of dinosaurs. The only living members of this variety of trees may be found on Norfolk Island, off the coast of Australia, and in certain sections of the Andes Mountains of Chile.

The log measures twenty inches in diameter by twenty-nine inches in height. It is approximately five cubic feet in volume and weighs about eight hundred pounds. It is composed of quartz, has a hardness of seven, no cleavage, and is mostly jasper plus small amounts of agate in bands and clouded.

Devastated forests, probably in what is now Canada, drifted on floods and were caught in a log jam at the base of several mountains. The bright sun evaporated the waters leaving alkali sands composed chiefly of borax, sodium chloride, sodium nitrate, and sodium carbonate. Wind blown silt and sand covered the area as iron and manganese oxides seeped down from the desert mountains. These oxides are responsible for the red colors in the petrified logs from the Rainbow Forest area of Arizona.

Tons of sand buried the logs deeper and deeper. Gradually, silica bearing magmatic waters moving underground seeped into the logs. These silica bearing waters with impurities dissolved and replaced the cellulose in the conifers very slowly; so slowly in fact, that the microscopic structure and order of the cells has not been destroyed.

The petrified log was donated by John E. Fish (1859-1943), a student at Eureka College from 1875 to 1877. The mounting of this log is dedicated to his memory.

In his youth, Mr. Fish while working for the Sante Fe Railroad, sent the geological specimen some fifteen hundred miles by rail to Eureka from Albuquerque, N. M.

The log is mounted on a base of concrete which extends two and one half feet into the ground. One top of this base, a hexagonal form, was placed and a layer of finish cement approximately six inches deep was applied. The log was imbedded about three inches into this top layer. A final layer of cement paste was applied to give a very smooth finish. As yet a plaque has not been obtained but we are investigating the feasibility of obtaining a plaque in the outline shape of the Sigma Zeta key. It will carry an appropriate inscription.

## RECRYSTALLIZATION OF COPPER SULPHATE

Joseph Allovio, Phi Chapter

In college chemistry laboratories no insignificant amount of chemicals are discarded after experiments are performed. For a considerable

number of years, Professor S. M. McClure has sponsored a series of problems on reclaiming and purifying the more abundant chemicals from this waste. The results of this work form the basis for a series of term papers. The professor believes this to be a superior teaching procedure since it involves principles and techniques, not generally included in beginning chemistry, such as crystallization, hot filtration and filtration under vacuum.

This paper is the seventh in a series under the title "The Utilization of Laboratory Wastes". A preliminary paper was published by H. P. Harper of Rho Chapter at Indiana Central College (1.) on the preparation and purification of copper sulfate from laboratory wastes. Harper's methods have been modified by a few new techniques and procedures that shorten the time of the preparation and appear to give equally good yields.

The waste used in the present purification was from a general chemistry class of thirty men. Although sufficient waste jars were available, only 1 liter of waste copper compounds were saved out of a theoretically possible 6000 cc. The waste contained mainly bits of metallic copper, cupric and cuprous oxide, copper sulfate, and other copper salts with silica, carbon and manganese dioxide as the most abundant impurities.

The preliminary step involved filtering the waste to remove all solid material. The residue was then treated with nitric acid to oxidize the metallic copper and cuprous oxide and to further dissolve the cupric oxide to the nitrate. (2) Concentrated sulfuric acid was then added in just sufficient amount to drive off the excess nitric acid and change the nitrate to the sulfate. Since concentrated sulfuric acid is a high boiling acid, many soluble impurities are also volatilized. This solution was then filtered while warm through a heated filter, because copper sulfate is more soluble in hot water than cold. The residue was discarded. The filtrate, after these preliminary treatments, was some 1200 cc. in volume. Two additional filtrations through a Buchner suction funnel resulted in a good clarification.

Harper used the older procedure of boiling down with sulfuric acid. This method resulted mainly in further concentrating the sulfuric acid, and the solution became highly acidic. Besides being a slow process evolving copious fumes, it also hindered crystallization. The use of nitric acid avoids these difficulties and brings the iron into the trivalent condition which prevents isomorphous crystallization of ferrous sulfate with the cupric sulfate.

The solution was allowed to evaporate at approximately 90 degrees C. until incipient crystallization occurred. The first crop of crystals obtained on cooling were large and massive with numerous inclusions indicating possible contamination.

Since it is known that after the third crystallization, most foreign materials will be removed, the triple crystallization procedure was followed.

If the nitric acid treatment had oxidized all the iron to the trivalent condition, it could not be included in the crystals. Ferrous iron, however, enters the crystal lattice and cannot be removed by mechanical processes. In order to determine if ferrous iron was present, the "brown stain test" (3.) was used, and found to give negative results. Since this test is fairly sensitive, significant amounts of iron were believed absent from the third crop of crystals.

To obtain "meal" crystals, the third crop of crystals were dissolved to a saturated solution at 70 degrees C. and allowed to cool rapidly with stirring. These "meal" crystals were filtered rapidly on a Buchner suction funnel and washed free of the filtrate with a fine stream of distilled water to avoid inclusions of the filtrate in the crystals. The washed crystals were then dried in a thin layer on a covered porous plate.

Approximately 300 grams of crystals were prepared from the original residue. A carefully controlled qualitative analysis of the fourth crop of crystals showed no impurities present in significant amounts and the product is believed to be sufficiently pure to be of reagent quality.

#### LITERATURE CITED

1. Harper, H. P., "The Utilization of Laboratory Wastes". Sigma Zetan, Vol. XVI, No. 1, Dec. 1944, pp. 19-20.
2. Blanchard, Arthur A., and Phelan, Joseph W., "Synthetic Inorganic Chemistry", Fourth Edition. John Wiley & Sons, Inc., New York, 1922, pp. 197.
3. Henderson, William E., and Fernelius, W. Conrad, "Inorganic Preparations", First Edition. McGraw-Hill Book Company, Inc. New York & London, 1935, pp. 9-10.

## NEWS FROM THE CHAPTERS

Alpha Chapter  
Shurtleff College  
Alton, Illinois

Dear Editor:

On November 29 the Sigma Zetans will visit the Monsanto Chemical works at Monsanto, Illinois. We have been fortunate to be located in an area where many field trips are possible. Our most spectacular field trip was to the coal Hydrogenation Plant at Louisiana, Missouri where we saw German and French equipment in operation in producing synthetic gas and fuel oil. On November 30 the Alpha Chapter will sponsor an informal banquet inviting all those interested in science and mathematics as our guests. Mr. Max Thompson of Western Cartridge Company will be the main speaker. His topic will be "Some Industrial Implications of College Science Training". Herbert Coleman, mathematics major will present the topic "Calculating Machines and Cybernetics". Norman Showers, mathematics major, will present another paper "Fun with Mathematics". Following the program we will welcome Frank Martini, Eugene Lane, Ralph Morrison, Harold Lawder and Robert Schopfer as new members. We will also welcome our new sponsor representing the Biology Department, Mr. Loren K. Freeman.

At each succeeding meeting we have delegated responsibility for a program to one of the four departments. This month the Mathematics department, guided by Dr. Warne, presented the program.

With the initiation of the new members we will have seventeen active members in our chapter. Graduation has taken a heavy bite

out of our previous high membership. Efforts are being made to keep in contact with our alumni and inform them of our activities.

We are also keeping in mind our activities and duties which will be ours when we serve as hosts to the Conclave next April celebrating the twenty-fifth anniversary of the founding of Sigma Zeta. In addition we are planning to present to the city of Alton a science program they will long remember. We feel we have a civic duty as well as an academic one. We have also made contacts with Monticello College, our sister college, and have and will cooperate in presenting programs.

We are looking forward to having every chapter represented at the April Conclave on our campus and extend a greeting and personal invitation to every member of Sigma Zeta to attend. Let's make it a memorable occasion.

Sincerely,  
Henry Romanko  
President

Beta Chapter  
McKendree College  
Lebanon, Illinois

Dear Editor:

The Beta Chapter began the school year with eight members returning. Since the Conclave last spring, we have accepted eight new members, two of which were accepted during the summer session. They are Newman Thompson, Marion Ruth, John Kaufman, Mathematics majors; Arthur Werley, Paul Beaty, Charles Ord, Roberto Hernandez, Chemistry majors; and Harvey Pitt, Biology major.

At the first meeting of this year, we elected the following officers: Richard Walton, President; Robert Egan, Vice President; Benjamin T. Anderson, Secretary-Treasurer. Plans are now being made for a project which will be carried out during the coming year.

We can use twenty-five copies of the next issue of The Sigma Zetan, which may be mailed to me.

Sincerely yours,  
Benjamin T. Anderson  
Secretary-Treasurer

Zeta Chapter  
Central State Teachers College  
Stevens Point, Wisconsin

Dear Editor:

Our Zeta Chapter began the school year with ten active members and eight associate members returning along with our faculty members. The first important activity of the year was the setting up of a science club for underclass men interested in science but not eligible for membership in Sigma Zeta. Over twenty-five signed up for the club and more will be coming in after the organization really gets started.

Initiation of new members will take place on November 30. With the number who are eligible our membership should increase considerably. Would it be possible to send fifty copies of The Sigma Zetan to the Zeta Chapter? Please send these copies to me personally.

With the hope that all the chapters will have great success in furthering the aims of our organization, I am,

Sincerely yours,  
Joann Kenney, Historian

Epsilon Chapter  
Otterbein College  
Westerville, Ohio

Dear Editor:

We will need thirty-six copies of The Sigma Zetan for the student and faculty members of our chapter. Please send these copies to Professor F. A. Hanawalt, Otterbein College, Westerville, Ohio.

There is not much to report for our chapter. We initiated fifteen new members on October 13. We are planning a program of student reports, field trips, and outside speakers. We held our annual banquet last spring. The officers for this year are: President, Neal Wheatcraft; Vice President, Robert Wooden; Secretary, Bernice Freymeyer; and Treasurer, Carol Boda.

Sincerely yours,  
Bernice Freymeyer  
Secretary

Mu Chapter  
State Teachers College  
Mankato, Minnesota

Dear Editor:

On Wed., Oct. 12, the Mu Chapter made a tour of the Great Lakes Oil Terminal located near Mankato. This terminal is a means of transportation for the dealers in this area.

The laboratory held the interest of everyone. The most interesting device was the "knock-meter" which was a gasoline engine synchronized with an electric motor. Octane ratings are checked by this device.

The overall efficiency of the terminal impressed everyone.

The Mu Chapter is planning a tour of the Northern States Power

Plant here in Mankato.

The Club will increase its membership by twenty-one on Nov. 16 when the formal initiation is to be held. Of these, six are faculty members. They are Hildegarde Horeni, Walter Fleming, Ben J. Fauver, Edwin J. Snead, Malcolm B. Cole, and Wm. J. Wells. Student initiates are Loren Braun, Duane Nelson, Eugene Stelter, Charles Rehwaldt, and Harold Fitterer who will be Active members. The Associate members-to-be are Harriet Krieger, John Brandenburg, Winston Grundemeier, Rayfield Hass, Joe Kieninger, Thomas Starks, Willis Unke, Ronald Wenberg, Milton Norman, and David Crane.

Mu Chapter will need 30 copies of the Sigma Zetan. Please send these to Dr. G. M. Wissink, sponsor.

Sincerely yours,  
Isabelle Schulz  
Editor-Historian

Xi Chapter  
Ball State Teachers College  
Muncie, Indiana

Dear Editor:

On September 29, our chapter held an organization meeting for the school year. Included in the meeting was a presentation of the programs for the year by Mrs. Phyllis Moora, program chairman.

The next meeting was held on Nov. 10. On this occasion 24 active and 7 associate members were initiated. Our present roster now numbers 50 active members, 7 associate members and 17 faculty members.

A new idea was presented during this initiation meeting. Our officers prepared ¼ inch plywood

replicas of the Sigma Zetan key, approximately 12" high and 6" wide. This is to be used by the initiates as a get-acquainted idea, not for a hazing method. The members will sign them and the new members will have a remembrance of their initiation. This was an attempt to personalize the initiation procedure.

The main speaker was Dr. Robert Cooper of the College Biology Department. His subject "The Taxonomy, Morphology, and Physiology of the Ophidia", proved very interesting to the entire group. Coupled with his discussion were slides and actual specimens.

Officers for the year are: President, Robert Strelman; Vice President, Harold Onkst; Secretary, still to be elected; Recorder-Treasurer, Charles Brumfiel.

Please forward eighty copies of The Sigma Zetan to Mr. Bromfiel, Professor of Mathematics.

Sincerely yours,  
Robert Strelman  
President

Pi Chapter  
James Millikin University  
Decatur, Illinois

Dear Editor:

The Pi chapter invited new associate members to a special program in October. Mr. Martin Cohen of the Decatur, Illinois Public Library spoke on "Science in the Library". On November 8, eighteen members went on a field trip to the Anheuser-Busch Company in St. Louis, Mo. The plant and research laboratories were visited which consist of 160 buildings and cover 70 city blocks. The laboratories visited were chemical,

analytical research, biological, bacteriological, nutritional, home economics, and bakery.

Last spring field trips were taken to Purdue University to see the cyclotron and other science departments, and to the University of Illinois to see the betatron. At present there are seven active members and twenty associate members. Ten of the associate members will be eligible for active membership as soon as their papers are presented. Pi chapter would like thirty copies of the Sigma Zetan.

Sincerely yours,  
Twila J. Strocher

—o—

Sigma Chapter  
Our Lady of the Lake College  
San Antonio, Texas

Dear Editor:

The first official meeting of our chapter was held on October 6. The object of this first meeting was to get acquainted with the new members and to explain to them the objectives of the chapter and the requirements for membership. The initiation ceremony took place on October 19, when Sister Elizabeth Ann, faculty member, Cecilia Goodwin and Juanita Herrera became active members. Delia Ramirez, Betty Polk, Lai Jean Woo and Perla Hermosa became associate members.

Officers for the year are: President, Cecilia Goodwin; Vice-President, Sarah Jo Perry; Secretary-Treasurer, Juanita Herrera; Historian, Betty Polk.

At our regular monthly meeting on October 6, Mary Ann Dashiell presented a paper on Irving Langmuir, the scientist. Jeannine Tay-

lor gave a paper on "Polio", reviewing the various theories of transmission, and the care of the patient. Both papers were listened to and discussed with great enthusiasm.

Our chapter President, Cecilia Goodwin, who is also secretary of The Collegiate Academy of the Texas Academy of Science, attended a preliminary meeting of the officers of The Collegiate Academy on October 8, at Georgetown, Texas. The purpose of this meeting was to discuss the final preparation of the program for the Annual meeting to be held at Houston, Texas, on December 2 and 3.

The ten members, of our science groups who attended the meeting in Houston are Cecilia Goodwin, Sarah Jo Perry, Delia Ramirez, Perla Hermosa, Adelle Ball, Lita Ortiz, Helen Barr, Virginia Calderon Lai Jean Woo and Juanita Herrera. Papers presented at the meeting were "Synthetic Glycerine", by Sarah Jo Perry and "Chemistry is a Cultural Subject", by Perla Hermosa.

Sincerely,  
Juanita Herrera  
Secretary-Treasurer

—o—

Upsilon Chapter  
Anderson College  
Anderson, Indiana

Dear Editor:

Five new members, four active and one associate member, have been initiated into Upsilon Chapter since the opening of the fall session. Included in this group of active members were James Austin, George Cerbus, Charles Kline, and Glen Sands, Biology majors; associate member, Joy Hensley is a Chemistry major.

Together with our sponsor, Miss Hurlbut, our officers for the current year are: Oran Pass, President; Olive Arms, Vice-president; Gertrude Naujoks, Secretary-Treasurer.

In addition to several business meetings, the Chapter held an initiation meeting at which time our initiates presented papers on various assigned topics. After dinner and the presentation of these papers, the formal initiation of members was held. A very enjoyable evening was had by everyone, and will be long-remembered.

The possibility of sponsoring an Open-House of the Science Department was discussed with the hope of stimulating a greater interest in the field of science among the students as a whole.

Please send us 25 copies of the SIGMA ZETAN. They may be sent to me in care of Anderson College, Anderson, Indiana.

Sincerely,  
Gertrude Naujoks  
Secretary-Treasurer

—o—

Phi Chapter  
Eureka College  
Eureka, Illinois

Dear Editor:

Phi Chapter of Sigma Zeta, began its school year with the loss of six members. Four members, Lloyd Emmert, George Mason, Eldon Van Sandt, and Harold Towls, graduated in June, while two other members, Kenneth Adams and William Slagle, transferred to other schools. The returning members were Richard Johann, Joseph Allovio, Benjamin Brown, James Esh, and Alex Kruzel.

On the 11th of October, a "paper meeting" was held, at which two student reports were given. Joseph Allovio spoke on the subject of Slate Coal Mining at Farmington, Ill. Alex Kruzel presented his paper on Xerography, a new process used in photography.

The second "paper meeting" held on November 1st, was a Science demonstration. This demonstration was presented to promote active interest in Science on the campus.

The Biology Department was represented by James Esh, who reported on the life and works of Alexander Agassiz, noted Zoologist and Geologist. Second on the program was Benjamin Brown, representing the Physics Department, who demonstrated the photo electric cell, Oscillograph, Geiger Counter, and the effects of Stroboscopic light on a revolving disk. Dich Johann kept the audience bewildered and quizzical by demonstrating the fallacies in Mathematics. In the Field of Chemistry, Alex Kruzel showed color changes of organic indicators in acid and basic solutions and their application in industry. He also demonstrated the process of Vat Dyeing. The last demonstration was a movie shown of a geology trip that was taken in Missouri by Eureka students in 1945. Professor S. M. McClure then spoke of the history and requirements of Sigma Zeta.

The reaction of the audience was satisfying since they were interested and enthused, therefore accomplishing what we had set out to do in the beginning.

Alexander Kruzel  
Editor



