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THE TECHNE

Life without Labor is a Crime, Labor without Art
and the Amenities of Life is Brutality.—Ruskin

March, 1927

No conqueror can make the multitude different from what it is; no statesman can carry the world's affairs beyond the ideas and capacities of the generation of adults with which he deals; but teachers—I use the word in the wisest sense—can do more than either conqueror or statesman; they can create a new vision and liberate the latent powers of our kind.—H. G. Wells.

It is imperative today that standards of training and ability be raised; that more and better students be secured for the teacher-training schools, and that the best service possible be obtained from the present teaching staff. The task of so administering salary schedules at this time that these desirable changes may be effected is one of the most difficult and, at the same time, most important problems facing school superintendents.—Edward S. Evenden.

A nation which lets incapables teach it, while the capable men and women only feed, clothe, or amuse it, is committing intellectual suicide.—Edward L. Thorndike.

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Vol. 10

No. 3

THE TECHNE

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W. A. Brandenburg, President

Vol. 10

March, 1927

No. 3

EDITORIAL COMMITTEE

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Edgar Mendenhall, Chairman

The purposes of this magazine are: To set forth the distinctive work of this College; to publish papers that will be of interest to its readers; to assist teachers to keep in touch with the development in their subjects; to foster a spirit of loyalty that will effect united action among the alumni and former students in promoting the best interests of the institution.

Alumni, teachers and friends of the College are invited to send communications on such subjects as fall within the scope of the magazine.

Sent free to all alumni and students and to teachers, school officials and citizens on request.

Entered as second-class matter December 13, 1917, at the postoffice of Pittsburg, Kan., under the Act of August 24, 1912.

The editors will welcome suggestions from TECHNE readers. Their desire is to make this little magazine helpful to teachers. Tell us how we can make it of greater service to you. Tell us what YOU want.

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THE ROLE OF MINERALS IN NUTRITION

By C. C. Cotton

Since the publishing of Von Liebig's theory that the mineral elements were of primary importance to the growth of plants, there has been considerable interest manifested concerning the functions of the inorganic elements in the body.

We find that as the stores of these elements in the soils are depleted they become the limiting factors in the growth of the plant, both in yield and ash content. And, in like manner, when these plants are used for food their lack in minerals becomes the limiting factors in growth and production in the body.

The early studies in the science of nutrition were confined, quite largely, to recording the influences of various proportions of the nitrogenous and non-nitrogenous organic nutrients on growth, development and production in the body. Comparatively little real qualitative work on the value and indispensability of the ash constituents has been done up to the beginning of the present century.

Analysts tell us that the elementary composition of the body may be presumed to be approximately:

	Per Cent
Oxygen	65.00
Carbon	18.00
Nitrogen ..	3.00
Hydrogen ..	10.00
Calcium ..	2.00
Phosphorus ..	1.00
Potassium ..	0.35
Sulphur ..	0.25
Sodium	0.10
Magnesium ..	0.05
Iron ..	Traces
Fluorine ..	Traces
Silicon ..	Traces
Iodine	Traces

Of these elements the simple proteins and carbohydrates furnish only five. The remainder, which are essential in amounts large enough to be given due consideration, must therefore be obtained by the body from other ingredients of the intake than the simple proteins, fats and carbohydrates.

Since these elements are found in the ash of food materials after incineration and are excreted from the body, chiefly in the form of mineral matter after metabolism, they are loosely grouped under the names of "ash," "minerals," "inorganic foodstuffs," etc. These terms are likely to be misleading. While some of these materials do exist in the foods

only in the inorganic form, others are essential constituents of organic matter and do not take on the inorganic form until after oxidation. However, in this paper, we will follow the dictates of current usage and group all of the elements and compounds found in the body, other than those furnished by the simple proteins, fats and carbohydrates, under the term "minerals."

There is little experimental data that will permit even a tentative conclusion regarding the indispensability or the minimum requirements of any of the inorganic elements found in foods for the body. It is known that normal development is impeded by a decrease and entirely prevented by the absence of even a single nutrient; and, if continued through a long enough period of time, the lack will cause decline, disease and ultimately death. It has also been demonstrated that the addition of mineral elements to an otherwise adequate ration causes a marked increase in body gains, improves the general condition, and strengthens the bones.

Of all the minerals found in the body calcium is probably the most important. It makes up the larger part of the ash, being about 2 per cent of the body weight, of which 99 per cent exists in the bones. In fact it is estimated that 85 per cent of the mineral matter in the bones and at least three-fourths of the entire ash of the body are tri-calcium phosphate. While most of the calcium is found in the skeleton, yet that in the soft tissues is of primary importance, being necessary in the normal muscular action, clotting of blood, and secretion of the body fluids.

There is a closely connected interdependence existing between the sodium, potassium and calcium in the body. The contraction of the muscles is due to the presence of the calcium salts, while relaxations depend on the presence of potassium and sodium. So the normal physiological processes depends not only on the presence of each of these salts but also on the quantitative relationship in the solutions. In fact the ratio between the concentration of the minerals in the diet may, within certain limits, be of greater importance to the welfare of the body than the absolute amounts of these substances which the diet contains.

Phosphorus exists in nature only in a combined form, as phosphates. Some form of this element is essential to every living cell. No other element enters into such a diversity of compounds and plays as important a part in so many functions. As it is a constituent of every cell nucleus, it is found in all cellular structures. It is involved in all cell multiplication, in the activation and control of enzyme actions, in the maintenance of neutrality in the organism, in the conduct of nerve stimuli; and through its relation to osmotic pressure, surface tension and the imbibition of water by colloids, it has to do with the movements of the liquids, with the maintenance of proper absorption and secretion and with all cell activity.

Sulphur is present in the protein of all living tissues and its functions are closely related to those of nitrogen in the body. It is generally

assumed that a typical protein, containing from 15 to 18 per cent nitrogen, will have about 1 per cent of sulphur present. This varies, however, from 0.3 to 2.0 per cent.

Sulphur is always found in the cystine radicle of the protein, and, while all of the sulphur cannot be recovered in the cystine, there are many who believe that the "unoxidized" or "loosely combined sulphur" that remains as an incomplete form of cystine.

Potassium in the body is found in greater abundance in the soft tissues, more often in combination with phosphorus than the other elements. It is present in the corpuscles of the blood, the protoplasm of the muscle cell, and the secretions of the glandular organs. As was previously stated in the discussion of calcium, potassium is necessary to the normal functioning of the muscle and, with sodium, is very essential in the saponification, digestion and absorption of fats.

Sodium chloride or common salt is of primary importance in the body. It controls the equilibrium between the tissues and liquids. If withdrawn from the body there is a corresponding loss of water. During starvation, if a small dose of salt be given, there is an increase of water in the tissues, showing that there is a constant concentration of sodium chloride in the body. It is also essential to the production of normal digestive juices.

This is practically the only mineral craved by the body in quantities other than occur in the food. That is explained by the fact that there is an antagonism between potassium and sodium in blood. Vegetable food is high in potash, and when this is absorbed into the blood stream, the sodium chloride decomposes (to some extent) and forms potassium chloride, the sodium uniting with some of the acids of the blood. These salts are then eliminated from the body and the serum, deprived of its sodium chloride, draws on the cells. Hence a craving of salt to restore the proper balance. In substantiating this theory Bunge, in his Text-book of Physiological and Pathological Chemistry, points out that the rural population of France, eating more vegetables, consume three times the salt that the urban population uses. People living on meats or animal nourishment do not care for salt.

According to many authorities, an excess of salt will cause a toxic condition, the symptoms resembling those of gastroenteritis, known as salt poisoning. This is more common in the live-stock world, especially among sheep, hogs and poultry. It affects the muscles so that the animal cannot walk and finally dies from asphyxia because of the loss of power of the respiratory muscles.

While magnesium does not occur in as great an abundance as some of the other elements in the body, yet it seems to be very essential. It is found in all tissues, and especially in the bones and muscles. It is thought to be involved in protein formation, possibly as an aid in the

assimilation of phosphates. Experiments have shown that there is an antagonistic action between magnesium and calcium. The effects of calcium on the muscles and nerves can be reversed by the injection of magnesium salts. They also seem to hinder the deposition of calcium in the bones.

The importance of iron in the life processes cannot be overlooked. If it is withheld from the body, anemia results. It exists as a constituent of the hemoglobin and serves as a carrier of oxygen in the blood stream. It exists as a very complex compound of the proteid group. It is absorbed almost entirely from the duodenum and is deposited in the liver, spleen and bone marrow.

Of the other minerals found in traces in the body, iodine is the only one that has been given much consideration. In certain sections of the United States the lack of iodine in the foods has caused serious thyroid disturbances. These conditions can, for the most part, be prevented by the administration of some form of iodine at stated intervals. In fact, Dr. Marine has prevented goiter in all of the school children in the city of Akron, Ohio, by giving two grams of sodium iodine, over a ten-day period twice a year, to all children between the ages of ten and seventeen.

As has been stated, almost three-fourths of the entire ash in the body is found in the skeleton. In the growth of the embryo the bones first develop as cartilages imbedded in an intercellular substance. This substance becomes impregnated with organic salts as growth advances and gives the rigidity and relative permanence to the structure. These tissues not only support the body and form a framework on which to build other tissues, but serve as a specific organ for the storage of minerals which may be drawn upon when the available supply becomes too low in the ration.

The movement of the liquids through the cell walls, resorption of food, control of the muscles, coagulation of the blood, and the transfer of gaseous products from one place to another, depend, in part, on the constant concentration of ash in the body fluids. This concentration is maintained by the excess of minerals resorbed from the food being thrown off by the kidneys. In case of a deficiency of ash in the food the supply stored in the bones is drawn upon or the water content of the body lowered to increase the concentration. Death would probably take place before the body fluids would become so weak as to be hyposotonic to the cells, and there are no indications that there could be any changes in the osmotic pressure.

The mineral elements entering into the body forms either acid or base reacting substances which must be neutralized in the tissues. Sulphur, phosphorus and chlorine are considered as the acid formers, while calcium, magnesium, sodium and potassium form the bases. When the acid-forming elements are decomposed or disintegrated in

the body, there are formed the non-oxidizable inorganic acids which cannot be thrown off by the lungs. These must be neutralized either by the base formers or by the diverting of some of the nitrogen for the production of ammonia.

It is believed that the molecules of the salts in solution in the body fluids are divided into electrically charged molecules, the units or quantities of the charges being in proportion to their valence. Each molecule gives off two kinds of charges or ions, a positive and a negative, and these are separate and distinct substances, except that the attraction of the charges prevents complete separation. The activity of a number of the enzymes depends upon the ionic concentration of the medium. Ptyalin is very sensitive to a slight excess of the hydrogen ions, pepsin is more active in their presence, while trypsin acts best when there is an excess of the alkaline ions present.

The digestive juices depend, in part, on the minerals in their specific processes. The ash of the saliva is composed chiefly of carbonate of lime with traces of alkaline chlorides and phosphate of lime and magnesia. The gastric juice, giving an acid reaction of 0.2 to 0.4 per cent, contains potassium, sodium, calcium and some free hydrochloric acid. Much difficulty is encountered in securing pure samples of intestinal juice for analysis. It seems to have a very alkaline reaction. One of its chief functions is to neutralize the acid chyme. The bile salts are primarily sodium chloride with small quantities of sodium carbonate, sodium phosphate, calcium and magnesium phosphate, with traces of potassium chloride, the strong alkaline reaction being due to the sodium carbonate.

The addition of minerals to a ration does in no way increase the digestibility of it. However, there is a beneficial effect resulting therefrom by an increase in the appetite, stimulation of the flow of the digestive juices, acceleration of the peristaltic movement, and less disturbances due to a change in the ration. One of the difficulties encountered in experiments involving a low plane of mineral intake is the lack of appetite.

There is undoubtedly a certain interdependence of all of the constituents of the body in respect to metabolism. If, for example, calcium is lacking in the ration, the retention of all the other elements used with calcium will be influenced in some measure, the extent depending on the duration of the deficiency. In identical processes the nutrients are used in rather definite proportions, but are somewhat different for the various functions.

Numerous experiments are on record concerning the relative value of organic and inorganic minerals in metabolism. While the belief has been strongly in favor of the organic forms, yet there is a mass of evidence proving that one form is as acceptable to the body as the other with certain reservations.

It was at one time thought that the normal balance of minerals in the body was maintained by a selective process of the kidneys, the elements most needed being turned back into the blood stream and the excess of those present in abundance excreted. This idea, however, has been refuted by a number of the present day physiologists.

Even in a case of starvation there is a continued loss of minerals from the body indicating that there is a constant changing of the elements that make up the tissues and fluids. It is chemically possible for these elements to be resorbed and utilized again by the cells, but because of a relatively slow absorption they are excreted before resorption has had time to take place. This is especially true if there is considerable bulk in the digestive tract.

McCollum of John Hopkins University states: "Growth to normal size and continued well-nourished appearance is not sufficient evidence that a ration is fully adequate. Only when normal reproduction and the rearing of young is repeated at normal intervals, can a ration be said to be physiologically sufficient." It is obvious that there should be an addition of minerals to a diet during pregnancy to secure the optimum results. All through intrauterine life and during the nursing period the nutritive requirements of the young must be satisfied through the mother. For a time after birth every mammal is incapable of taking any type of diet except milk. On a faulty ration there is a tendency for the mother to sacrifice her tissues to maintain the normal composition of her milk, the same as she did during her development of the embryo. Weakening of the bones, decay of the teeth, loss of hair, and disturbed functions are, seemingly, the natural heritage in the production of young.

It has long been recognized that the ordinary foods are inadequate to meet all the needs for building and maintaining the body and the specific effects are due to their limitations. With the more advanced knowledge of digestion has come the discovery that the quality of nutrients is as important as quantity. Proteins have been resolved into their simple products, amino acids, which vary greatly with the source. And it has been shown that the nitrogenous requirements are for the amino acids and not the proteins as a whole. If a complete protein be fed, the tissues will sort out the particular acids that are needed for their specific functions and utilize the rest for energy.

The vegetable proteins are more incomplete than the animal proteins, so are not as good for growth as the caseins or albumins. McCollum found that rations containing three per cent of milk protein was sufficient for the maintenance of a rat, while it required 4.5 per cent of the oat, 6 per cent of the wheat, 6 per cent of the maize, 8 per cent of the flax and 12 per cent of the pea or bean. In other words, the milk proteins are four times as efficient as those derived from legumes.

The minerals vary greatly in distribution in different parts of the plants and the total content of the plants of the same species varies with the availability of the elements in the soils on which they are grown. The greatest per cent of the phosphorus, sulphur and magnesium is stored in the seeds. The potassium and sodium are fairly uniform in their distribution throughout the plant, while the calcium and chlorine are found almost entirely in the leaves and stems.

AN ADVENTURE IN STUDENT SELF-GOVERNMENT

New Jersey Education Bulletin

To those interested in the development of satisfactory training for citizenship by the public schools, an account of a project recently carried out by the pupils of the Plainfield High School will prove interesting.

This school, in Plainfield, N. J., is a four-year high school with an enrollment of 1,106 at the time of the experiment.

The annual convention of the New Jersey State Teachers' Association had been set to cover Armistice Day and the two days following, and many of the teachers wished to attend this convention. Looking ahead and considering what should be done to keep the school functioning, the principal suggested to the president of the Student Council that if the student body wished to undertake it, they might receive permission to assume control of the school Friday after Armistice Day.

At the next meeting of the Council, called for another purpose, the principal being absent, the matter was proposed by the president and discussed at some length. The members of the Council were favorable plan unless the school was overwhelmingly behind it. So a committee to the idea, but decided that they would rather not go ahead with the was appointed to secure an expression of opinion from the school. This committee arranged that the proposal be discussed in the English classes; that an expression of opinions, pro and con, be prepared by each class, and that a written report be prepared. The question proposed was whether or not the pupils favored the plan of asking for permission to assume entire control of the school for one day, with no teachers present—whether they thought such a plan good or bad, and why.

The reports were collected and brought to a meeting of the Council, where some of them were read and summaries of others were given by the committee members. It developed that, while on the part of some of the students there was doubt as to the ability of the younger pupils to conduct the classes satisfactorily, there was an almost unanimous opinion that only very few would not undertake the responsibility in a serious spirit; that all would do their best to make the venture a success.

Accordingly, a resolution was adopted: "That the school be left to run itself for one day," and "that the plan submitted to the principal for approval."

The principal reported that he would take the matter under advisement and submit it to the superintendent for endorsement. Heads of departments and other teachers consulted thought that the experiment was worth trying, and the superintendent gave his consent. Accordingly, the Council was informed that the experiment might be tried.

Discussion in the Council brought the following recommendations:

That the teachers assign lessons for the day of such a character as would be best taught by pupil teachers.

That the pupil leaders should be chosen by the classes and not appointed by the teachers.

That all classroom doors should be left open.

That a special group of influential seniors be appointed by the president of the Council to have general charge of the school, each assigned to a special part of the building.

That in case any disorder should arise, it should not be made a case of discipline; but that the seniors in general control should speak to those at fault and appeal to them for co-operation.

That the assistant attendance officer be requested to retain charge of her duties so that the records might be kept straight, that the principal's secretary be left in her office, that the pianists who usually play at the assembly exercises and in the girls' gymnasium classes should be asked to perform as usual, and that the lunch counter staff should not be absent.

The president of the Council was put in general control to serve as acting principal. His group of special assistants was happily chosen; among them were the captains of the football and basketball teams.

Shortly before the appointed day the Acting-Principal-To-Be sent out the following bulletin to the teachers:

The Council asks that the teachers inform the various leaders that the idea of discipline is not to threaten the pupils with various punishments but to hold them to good conduct by appealing to their sense of responsibility.

Also, there will be a patrol of six seniors, two to each floor, whose duty it will be to assist the chairmen of classes if necessary.

We consider it advisable to leave the doors open, that the classes may not be disturbed by the student patrol.

Disorderly pupils are not to be sent to the library to be disciplined. As a last resort, they are to be sent to the office.

Please also ask the chairmen to be sure that the attendance is accurately checked up.

When the day arrived, not a regular teacher was present. Some were attending the convention, some visiting other schools, some making up work, and some merely taking a holiday.

The affairs of the day were entirely planned and carried out by the pupils themselves, with the exception of the lesson assignments. Consultations had been held between the pupils and teachers and principal about various matters, but the initiative and final decisions were in all matters left with the pupils.

Information as to the developments of the day is available from several sources.

The Acting Principal writes:

The experiment of Friday I consider as a whole a success. Naturally, there were a few minor disorders, but the school took care of itself even better than I expected or even hoped it would.

In assembly we had a very lively but not disorderly time. We had one hymn and then the Bible reading and prayer. After the usual announcements were made, I gave the school a very short talk in which I told the students that they were on their honor and that it was up to them to back this test. I then turned the assembly over to ———, who led the singing. We did not sing any of the "old favorites," and the singing and cheering which followed was the best we have yet had in school. We used up all our excess energy in assembly, and therefore, the first two periods were exceedingly quiet. During the remainder of the day I had a few Freshman classes to quiet, but the three upper classes accomplished a good deal of work. Lunch was quieter and more orderly than usual. The sixth period was the hardest because the strain was beginning to tell on the entire school. There was very little in the way of individual poor behavior.

If this experiment were to be tried next year, I would suggest that the Freshman be supervised by Seniors. But, considering all the temptations and possibilities for trouble, I think that the experiment was a success and that the school should be complimented for it.

Acting Principal.

The assistant attendance officer, who has a desk at the end of the library, but was instructed to take no responsibility for the behavior of pupils on that day, reported that there was much talking among pupils there, especially during the final two periods. This may have been part-

ly due to the fact that our Friday schedule sends an especially large number of pupils to the library on that day.

An inspection of the classrooms by the principal, after school had closed, revealed three paper darts and half a dozen of those doubled pieces of paper that mischievous boys sometimes shoot with elastic. These have been known to be found at the end of a day when all teachers were present.

The head janitor declared that, so far as he could see, the order in the school was as good as it ever was, and that the building was never in better condition at the close of school.

The woman in charge of the lunch counter said that the pupils were even more quiet and courteous than usual.

A member of the Board of Education writes:

May I record my impressions of my visit to the High School on the day that the pupils assumed charge?

I went through the entire building passing each open door, and in every instance found even better order being preserved than on ordinary occasions.

That is due in part, at least to the character of discipline that has been inculcated, is easily recognizable. In thinking over the matter, however, I have wondered if what seems to me a truly unusual situation was not partly due to that quality in human nature which almost invariably responds favorably when trust and confidence are imposed.

Two visiting teachers from other towns, who came unexpectedly, report as follows:

1. It has been a real treat to visit the High School today and observe your experiment in having the Student Council run the School. It seems to me to be a real success. Your very able acting principal, as well as all other students I have come in contact with, have conducted themselves with a very admirable dignity and courtesy.

2. It seemed to me that your Student-Governed School Day was a very marked success.

The school, as a whole, showed superb qualities of self-control and rare organization. They seemed to have caught a vision of an ideal—a larger citizenship, of which they were a part. Each subordinated himself, for the purpose of Team Play, and obedience to his chosen representative leader. The school caught, by contagion, the spirit of those splendid leaders (President of Student Body, President of Senior Class, Athletic Secretary, and others).

Chapel was devotional; speeches were powerful; singing was excellent. Never have I heard such cheer-leaders, or a better following.

Mathematics, oral English, U. S. history, art, lunch—each was admirably “put through.”

The “Patrol” was responsible. Every post was well manned.

Class secretaries, class critics, and many other pupils prepared reports describing happenings of the day. Space forbids the presentation of any of these in entirety; excerpts showing the general tone are:

1. We arrived Friday morning in exactly the same way that we always had, but something was different. We were just a little excited. You could see it in our faces. Every one was getting a certain thrill out of the adventure. It was something new and different.

When the 8:28 bell rang, we were all in our seats. Despite the protests of the one in charge, we did talk quietly, but not more than usual. We filed in to chapel in the regular way to Miss ——’s playing. She was the only older person in the room and seemed to enjoy us immensely. —— announced a hymn and —— read the Bible, while we listened quietly. The principal’s impersonator read notices and proceeded to remind us of our responsibility in much the same way that he would have done. We spent the rest of the time singing and cheering, even overstepping a little into first period.

Our English class was very orderly, and when the time for the test was up, we had some fun with Genevieve Gertrude. Our French class, which is usually very talkative, was much more quiet than any of us expected. The next period I played teacher. It was loads of fun, even if all I did was to shout outlines of the French Revolution at the class. On line at the lunch counter the Student Patrol kept us in order as usual.

In chemistry our teacher was a little too good-natured. But, although we didn’t accomplish a great deal, we weren’t disturbing.

In the sixth period study we never have a teacher, anyway, so it didn’t affect us. By that time I think the novelty had worn off, and we had almost forgotten that we ever did have teachers.

The Student Patrol spent their day acting as policemen, but from what I heard, they weren’t needed after all. Altogether, I think that the whole day was a complete success, and I doubt if the teachers had as much fun as we did.

2. The experiment tried last Friday, when the students of the Plainfield High School were left on their own honor with not one teacher in the school, proved a success.

To begin with, the chapel exercise was conducted in the usual way. —— was in charge of the singing. —— read a psalm from the

Bible. Announcements were given by various members of our school. The singing and cheering which was given in unison remained loud and clear till the close of the chapel period.

The classes of the day were conducted in a satisfactory manner. In all of my classes, the pupils were quiet, and respected their chairmen. However, I think our English class was the best.

Therefore, this successful experiment should prove to all that the pupils of the Plainfield High School are capable of being left on their own responsibility.

3. Chapel exercises were a great success with Mr.——, Jr., and Mr.——, Jr., leading cheer. Class periods were observed in the usual manner and were carried through quietly and successfully.

Unexpected visitors appeared on the scene, and they were actually caught gasping with surprises and pleasure at our high sense of honor and our reaction to responsibility.

4. For the first time in the history of Plainfield High, we were allowed the privilege of conducting school without any teachers present. The plan worked, and better than the most of us thought.

Our first thrill was during chapel exercises, since the Messrs. ——, ——, and —— were not here. One of the boys, assuming Mr. ——'s place, led the school in a few songs, some of which we had not sung before this year. A few cheers were given with a great amount of pep and volume. The whole program was not long enough to cut any time from either period.

During the first period, I went to the library to study. Of course, a few boys were somewhat noisy at first, but when —— emphatically made it known that they must get down to business, they became quiet.

All of my other classes were very orderly. In our English class, we had a story read to us. It was funny, but I do not think we laughed loud enough to discomfit the nearby classes.

I spoke to several students about the conduct in their classes, and they informed me that one would hardly know that the teacher was not present.

5. Friday was a success! All of the classes went off well, because I think each pupil realized the part he played in the game. Many of us thought we got along just as well without the teachers as with them. I think the day was a success because it showed us that we can do a thing when we put our mind on it.

6. Friday's experiment seemed to have worked out exceedingly well. Of all classes I was in not one acted out of place. Of course, there was a bit more confusion than usual, but that was not to be helped. Even

though our story was amusing, it did not upset the class. I took care of a typewriting class and it went off very well. The pupils were all willing to do their share. I do not think that the patrolers had to speak to very many, if any, students who were disorderly. In all, I think the school conducted itself very well considering that there were no teachers there to preside over it.

Of course, we must allow for a natural optimism and a desire on the part of the pupils reporting to present the matter in a favorable light. Also, some reports are not so favorable. One pupil writes. "Cutting periods was increased somewhat, and forged slips were used." Hilarious laughter" by pupils "trying to be smart" in the last period in the library is also reported. In a mechanical drawing class the reporter says that work ran out and for a short time at the end of the double period "the pupils got to talking and no work was done." Similar irregularities were reported from some other classes. Several commentators say that the pupil-teachers covered the lesson before the end of the period and did not know how to fill the rest of the time.

It should be noted that the regular school program was carried through as usual, including assembly exercises, shop-work, drawing classes, and gymnasium classes, as well as recitations and study rooms. Also, it is worthy of note that the day chosen was especially difficult, as it was a school day between two holidays, when a school is sure to be somewhat restless.

Careful consideration of all information available seems to justify the conclusion that in so far as quiet behavior, attention to work, the exhibition of good taste, regard for authority, and devotion to duty are concerned, conditions were at least 90 per cent as satisfactory as when the teachers were present.

Of course, it is not expected that the quality of instruction and the progress of the classes could be as satisfactory in the hands of inexperienced leaders as under trained experts. But for such losses for a day there are abundant compensations—in the increase of a sense of responsibility on the part of the pupils; the development of the consciousness that school is a cooperative undertaking; the growth of the realization that accomplishment by the pupil depends largely upon himself; and the increase of self-control; and of self-respect through the consciousness of having done well an important and difficult task.

These compensations seem to have been secured. It seems fair to conclude that this experiment in student self-government was successful.

CAMPUS JOTTINGS

Kansas State Teachers College of Pittsburg gave rehabilitation training to 573 ex-service men after the war, states a bulletin recently off the college press.

Forty of these men received the bachelor's degree, six took life certificates, forty-four took diplomas in practical engineering, seven sub-collegiate diplomas, and thirteen high school diplomas. Only one man, Francis Malone, of Bookville, who will be graduated this summer, remains as the last of the "vocates." A number of the men who completed a college course also made up part or all of a high school course, doing both in less time, in many instances, than it usually takes for the college course.

Superintendent Glenn A. DeLay of Neodesha was the speaker before the Education Club at the College on March 16. He discussed the individual plan of instruction as it is being practiced in the fourth grade at Neodesha.

Clyde Hartford, well known boys' worker in the Pittsburg Y. M. C. A. in recent years, is now studying at Kansas State Teachers College of Pittsburg while also holding the position of vocational adviser in the Pittsburg high school.

A debating squad of fifteen students has been trained at the College this year. Its members are as follows: Miss Winifred Burkett, Erie; Miss Betty Chamberlin, Parsons; Miss Iris Cheverton, Rich Hill, Mo.; Miss Sibyl Gray, Galena; Miss Beulah Shinkle and Tom Kelley, Paola; Phonce Mitchell, Baxter Springs; Miss Velma Totten, Winfield; Charles Yoos, Arcadia; Tom Elliott and Joe Skubitz, Frontenac; and Garvey Bowers, John Bowers, Lawrence Curfman and Charles Wade, Pittsburg. This group was chosen from twenty-three students who entered the try-out. Besides engaging in single debates, the squad took part in the forensic tournament of the Kansas colleges at Ottawa, March 31 and April 1, and also in an Oklahoma-Kansas tournament here on April 7 and 8.

Hobo Day, the annual day of "make believe," was observed at the Kansas State Teachers College of Pittsburg on March 31. The hoboes met at 9 o'clock for the day's celebration. They marched through town and then back to the stadium for a typical handout. There was a field meet, consisting of games and races, in the afternoon. At night the hoboes frolicked at an all-school party.

Francis MacMillen, famous American violinist, will be one of the headliners in the spring music festival at Pittsburg State Teachers College, Dean G. W. Trout, chairman of the festival board, announced. This is the first season that an evening's program has been devoted to a violinist. A new quartet of oratorio soloists has also been engaged because of the illness of Ruth Miller, a member of the quartet previously

engaged. The four who will sing in both Verdi's "Requiem," and "The Messiah" are Forrest Lamont, of the Chicago Civic Opera Company, tenor; Nita Taylor, Kansas City, soprano; Mrs. Raymond Havens, Kansas City, contralto; and Arthur Middleton, New York, bass. Tito Schipa, the renowned tenor, will open the festival on Monday night, April 25.

Twenty-two athletes at the College were awarded letters by the College Athletic Council for their work during the winter season as members of the basketball and wrestling teams. Both teams captured the state championships in their sports.

Letters were given to these cagers: Frank Hoffman, Pittsburg; Jess Anderson, Wetmore; Kay Goforth, Winfield; Tom Scott, Pittsburg; Glenn Meisenheimer, Garnett; Captain Deming Shaw, Thomas, Oklahoma; Clifford Breithaupt, Edgerton; Maurice Woodford, Topeka; Floyd Smith, Bronson; Herbert Cormack, Pittsburg; Herbert Benson, Clay Center (reserve letter).

The wrestlers who won letters were as follows: Will Beaver, Tyro; Roy Garr, Caney; Jack Schindler, Augusta; Lindley Dendy, Latham; Frank Green, Pittsburg; John Curran, Cherokee; Harry Fox, Severy; Melvin Buzzard, Jasper, Mo.; Roscoe Madison, Kingman; Irvin Pompelly, Cedar Vale; Frank Campbell, Altamont.

Two co-eds at Kansas State Teachers College of Pittsburg—Miss Velma Totten of Winfield, and Miss Betty Chamberlin of Parsons—performed on March 19 the feat of debating both sides of a question in two intercollegiate debates on the same day. In the afternoon they defended against Wichita University the negative of the proposition that Congress should enact a uniform marriage and divorce law and at night they took the affirmative against a new team from Wichita.

By capturing the state pennants in basketball and wrestling in the season just closed, athletes at Kansas State Teachers College of Pittsburg brought their total of championships and championship ties to eight since the spring of 1924. Gorilla track and field men won the state meet in May of 1924. Gorilla gridsters took the state title the following fall. That winter the basketball five shared the top position in the percentage column with Washburn. In 1926 the basketeers, undefeated in the conference, again shared technical honors with Washburn, as again the two teams did not meet in the conference, but in the post-season battle at the Kansas City national tournament the Gorillas were victors. The college's wrestlers also had a clean slate at the close of the 1926 season, the first for that sport here. Then last fall the cross country runners proved the swiftest of three active teams in the conference and took a forfeit from the fourth.

Several members of the Kansas legislature among those most prominent in working for an appropriation for a music hall at Kansas State Teachers College of Pittsburg were the guests of the college recently

at an assembly which celebrated informally the gaining of the building. The legislators who spoke were as follows: Senator C. W. Spencer, Chautauqua county, who is also a member of the board of regents; Senator M. G. Vincent, Crawford county, a member of the budget committee and of the ways and means committee; Senator O. W. Sparks, Cherokee county; W. A. Newkirk, representative from Barber county and a member of the house ways and means committee; A. L. Scott and John W. Richardson, representatives for the two districts of Crawford county. Four former members of the legislature—J. A. Gibson, John Halliday, F. B. Wheeler, and Dr. A. C. Graves, all of Pittsburg—were also guests.

Two more buildings will be erected at Kansas State Teachers College of Pittsburg within eighteen months. One will be the music hall, for which the last legislature appropriated \$150,000. The other will be a grades training school for student teachers. Though plans for the music hall have not yet been worked out, the structure will be one of the best of its kind in the country, President W. A. Brandenburg said. An auditorium of moderate size, encircled by two or three stories of studios and practice rooms, will probably be the core of the building.

The training school building is to be erected by the city of Pittsburg just off the campus, but will be equipped and operated by the college. According to the present plans it will be completed early next fall. The rapid growth of the college has made the two buildings necessary. The new library building, which has been under construction for the last year, will be opened in time to accommodate the summer school crowd, President Brandenburg announced.

The training of health teachers who can also conduct physical education programs is a new task that the Biology Department of the College, in co-operation with the Departments of Physical Education for Men and for Women and other departments, is to undertake next fall. The course will be an extension of one on public health and hygiene that Prof. J. Ralph Wells has taught for several years. Specialists graduated from this course will be ready to do for smaller communities the work that is divided among several experts in larger communities.

The Women's Glee Club gave five concerts the week of March 21, singing at Fredonia, Severy, Latham, Sedan, and Caney. On the night of March 16 the men's and women's clubs joined to give a concert in the college auditorium. Programs by the men had already been given at Parsons and Fort Scott. The men are planning further engagements.

Dr. O. P. Dellinger was recently elected Lord High Mokus of the local chapter of the Red, Red Rose, the school men's lodge.

Job Negeim, Arabian student, gave through March a series of lectures on the Holy Land to the College Y. M. C. A.

SUMMER SESSION

The summer session of THE KANSAS STATE TEACHERS COLLEGE OF PITTSBURG begins Tuesday, May 31. A wide choice of courses will be offered in the Biological Sciences, Drawing and Handcraft, Education, Methodology, English, Foreign Languages, Geography, History and Social Sciences, Home Economics, Industrial Arts, Mathematics and Applied Mechanics, Music, Physical Education, Rural Education, and Speech.

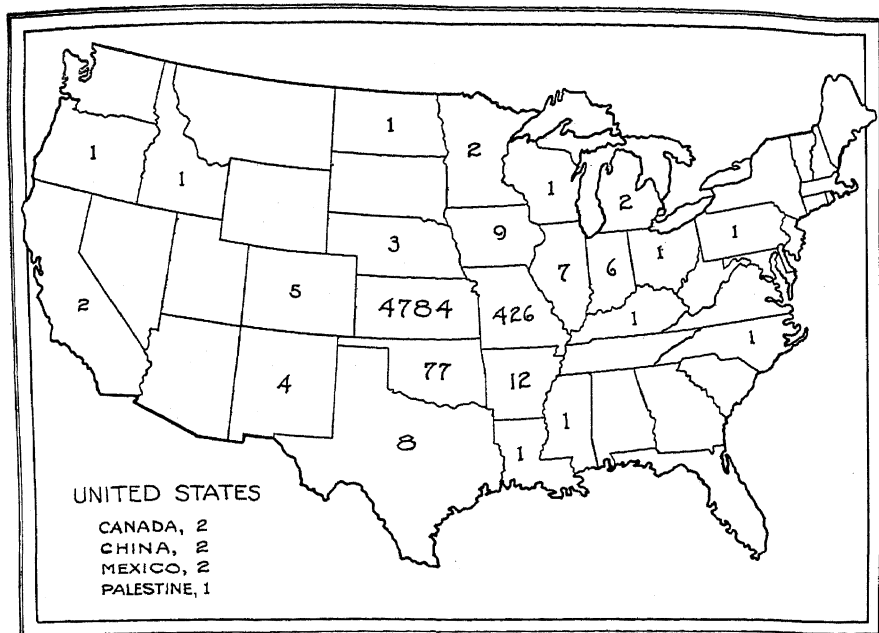
Classes will be under the direction of the regular members of the faculty, with such added help as may be needed.

Special features of the summer session will be a number of lectures by educators of national note, among whom are: Dr. Edwin E. Slosson, William McAndrews, Dr. A. E. Winship, and Mr. Synud Hossain, with still others who will be arranged for. There will be entertainment and instruction through high grade plays and moving pictures, a vocational conference, and a community week.

Enrollment for the August term will be on Saturday, July 30.

For further information and bulletin, write

PRESIDENT W. A. BRANDENBURG
Pittsburg, Kansas



Distribution of Students in State Teachers College, Pittsburg, 1925-'26,
by States and Countries

KANSAS																								
Cheyenne	Rawlins	Decatur	Norton	Phillips	Smith	Jewell	Republic	Washington	Marshall	Nemaha	Brown	Danforth	Nebraska	Jefferson	Lincoln	Ellsworth	Saline	Dickinson	Gary	Wabasha	Shawnee	Douglas	Johnson	Wyandotte
1	1	1	1	1	1	1	2	1	1	4	6	4	4	1	3	2	9	3	1	5	8	14	3	13
Sherman	Thomas	Sheridan	Graham	Rooks	Osborne	Mitchell	Cloud	Clay	Pottawatomie	Jackson	Nebraska	Jefferson	Lincoln	Ellsworth	Saline	Dickinson	Gary	Wabasha	Shawnee	Douglas	Johnson	Wyandotte	Nebraska	Jefferson
1	1	2	2	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wallace	Logan	Gore	Trego	Ellis	Russell	Lincoln	Ellsworth	Saline	Dickinson	Gary	Wabasha	Shawnee	Douglas	Johnson	Wyandotte	Nebraska	Jefferson	Lincoln	Ellsworth	Saline	Dickinson	Gary	Wabasha	Shawnee
2	1	1	1	1	1	1	2	9	2	3	1	5	8	14	3	13	2	9	3	1	5	8	14	3
Greely	Wichita	Scott	Lane	Ness	Rush	Barber	Rice	McPherson	Marion	Chase	Lyon	Coffey	Anderson	Linn	Franklin	Miami	13	2	9	3	1	5	8	14
2	2	2	2	2	2	13	9	2	9	1	5	8	14	3	13	2	9	3	1	5	8	14	3	13
Hamilton	Kearney	Finney	Hodgeman	Pawnee	Edwards	Stafford	Reno	Harvey	Butler	Greenwood	Woodson	Allen	Bourbon	25	33	37	46	510	56	87	30	48	56	87
2	2	2	2	2	2	2	5	15	10	11	1	33	46	510	56	87	30	48	56	87	30	48	56	87
Shenandoah	Greeley	Haskell	Gray	Ford	Kiowa	Pratt	Kingman	Sedgwick	Combs	Ellis	Montgomery	Lebanon	Cherokee	87	30	48	56	87	30	48	56	87	30	48
2	2	2	2	4	2	1	4	15	33	9	48	56	87	30	48	56	87	30	48	56	87	30	48	56
Morton	Stevens	Seward	Meade	Clark	Comanche	Barber	Lyons	Sumner	Combs	Ellis	Montgomery	Lebanon	Cherokee	87	30	48	56	87	30	48	56	87	30	48
2	2	2	7	4	2	2	7	5	33	9	48	56	87	30	48	56	87	30	48	56	87	30	48	56

Distribution of Students in State Teachers College, Pittsburg, by Counties
Fall Semester 1926