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State Manual Training Normal School

THE TECHNE

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

"Then came a great shout from the flag: 'Let me tell you who I am. The work that you do is the making of the real flag. I am not the flag, not at all; I am but its shadow. I am whatever you make me, nothing more. I am your belief in yourself, your dream of what a people may become. Sometimes I am strong with pride, when men do an honest work, fitting the rails together truly. Sometimes I droop, for their purpose has gone from me, and I play the coward. But always I am all that you hope to be, and have the courage to try for. My stars and stripes are your dreams and labors. They are bright with cheer, brilliant with courage, firm with faith, because you have made them so out of your hearts. For you are the makers of the flag, and it is well that you glory in the making.'"

—FRANKLIN K. LANE,
Secretary of the Interior.

THE RED CROSS.
Have YOU Joined?

STATE MANUAL TRAINING SCHOOL
PITTSBURG, KANSAS

7-1777

THE TECHNE

PUBLISHED BY THE
STATE MANUAL TRAINING NORMAL,
PITTSBURG, KANSAS.
A COLLEGE FOR TEACHERS.

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CONTENTS.

STAFF.

The purposes of this magazine are: To set forth the distinctive work of the State Manual Training Normal; 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 Normal are invited to send communications on such subjects as fall within the scope of the magazine to the committee in charge.

Address all communications to The Editor, State Manual Training Normal, Pittsburg, Kan.

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The Bull Snake Argues.

By W. E. RINGLE, Department of Biology, S. M. T. N.

One day a bull snake invited several of his kin to a dinner. He wished to discuss ways and means of bringing about more harmonious relations between snakes and men.

The dinner was spread on a rocky ledge in a ravine of southern Kansas. The guests were representatives of the various species of snakes living in that part of the country. "Among those present," the society column says, were the king snake, blue racer, pilot, native moccasin, garter, green snake, rattler, and copperhead.

After a most refreshing meal made on mice, rats, English sparrows, frogs, and caterpillars, the bull snake addressed his guests as follows:

"It is indeed a pleasure to have so many species of snakes present. This should be the first of many such meetings. There are momentous questions for us to consider together. It seems to me only a matter of time until all of us shall become extinct unless the teachings of the biology professors, whom the general public looks upon as freaks, prevail and turn public sentiment in our favor.

"Ever since Adam and Eve got into trouble over the forbidden fruit, our lives have been a curse to us. Since the beginning of time men have taken great delight in setting their heels on our heads. Yet just why we should continue in disfavor is hard for us to understand.

"Of course everybody knows, Mr. Rattler and Mr. Copperhead, that you are armed with deadly weapons and are prepared to strike a deadly blow if forced to do so. But not one of the rest of use is armed at all, and we could not fight even to save our lives.

"But everybody also knows that there are a great many men more treacherous and far more dangerous to society than the most venomous of our kind. Yet all men are not held in disrepute just because a few of their kind are villainous. On the other hand, men consider all us snakes as their enemies because two of us can defend ourselves if we have to.

"I declare this to be wholly unfair and inhuman. (The bull snake gave the ledge a sounding rap with his tail.) I assert that men are proceeding on the wrong principle, when fathers and mothers teach their boys and girls, both by precept and example, to kill every one of us simply because we are snakes. They do not stop to consider that we are a part of the great plan of creation and that we were placed here for a purpose. They do not realize that we have a part to play in establishing an equilibrium among all the living forces of nature.

"Yet many of these same fathers and mothers permit their beloved daughters to go unattended, and gaudily and scantily clad, to public places of amusement, there to mingle with human vipers whose sole mission is to lead astray and betray the innocent. These human snakes not only cause grief and heartache in the home but also inject the most venomous kind of poison into society.

"The human reptile frequently cannot be distinguished from other men. The children of mankind, therefore, would be in far less danger in a den of snakes than a crowd that includes these wretches, for our venomous snakes are all marked in such a way that they are easily recognized.

"You, Mr. Rattler, for instance, warn that you mean to strike by making a buzzing sound with the rattles on your tail. This sound is easily recognized and men rarely mistake it. Even though we make no sound, men need only glance at our eyes to know whether or not we are poisonous. The eyes of every venomous snake have elliptical pupils, while those of all others are round. Whenever a man meets a snake with round pupils he may be sure that snake could do him no more harm than a baby could. And there is no chance that a dangerous snake will hide his eyes, for none of us has eyelids and we can't close our eyes even when we sleep.

"A pit between the end of the nose and the eyes is another sure mark of the venomous snake. For this reason all snakes of this kind have come to be known as pit vipers. Besides this, every poisonous snake has a broad, flat head.

"The human viper, however, has no fixed points of identity. So by flattering tongue, hypnotic persuasion, suave manners and immaculate attire, slowly but surely he injects the most destructive poison of all. Yet he walks and he talks and he is given the power to think and reason and is permitted to mingle with the best society without fear of having his back broken or his head mashed with a fork handle, club or stone.

"The attack of the venomous snake is not nearly so sure of reaching its mark. Before a snake strikes it must coil itself, raise its head, throw its mouth back and upward, and finally spring forward. And after all this preparation, it cannot leap more than half its own length.

"A great many people are foolishly afraid of our tongues. I suppose it is because they are forked and because we constantly flash them from our mouths. Now, if such persons understood why we must do this they would not so groundlessly accuse us of using them to sting with. They do not know that we use our tongues as organs of feeling, tasting and hearing, and have to flash them out, first one way, then the other, so we may know what is going on about us. Our tongues are, of course, absolutely harmless.

"I wish I could say as much of the human tongue. But from the observations I have been able to make I am convinced that it may be the vilest and most venomous thing in the world. It may cut to the heart with every lash. It may be keener than the sharpest sword. Its venom may permeate whole communities. It may cause murder and suicide. It may wreck homes, break up churches, and disrupt nations. The vilest and most dangerous tongue of all is that of the gossip.

"But the foolish and even hideous stories men tell about us get farther away from the truth than their incorrect notion of what our tongues are for. You are, Mr. Black Snake, a very frequent object of their libels. They accuse you of wrapping yourself around men and crushing the life out of them. You are also charged with exercising a hypnotic charm over birds and squirrels that lures them to their death. But your

kindred know, Mr. Black Snake, that you are not a boa constrictor and can squeeze nothing to death. They also know that your hypnotic powers are as mythical as those of men who claim to possess them.

"Then there is the fool story about our mythical kinsman, the hoop snake. They say that he rolls along like a hoop, holding his tail in his mouth, and that when he meets with a tree, ping! goes the sharp end of his tail into the tree, and the tree is dead before sunset. If it happens to be a man instead of a tree, he dies instantly. It's queer how such stories get started, when there isn't any such thing as a hoop snake.

"Men have said that rattlesnakes and other venomous snakes sometimes commit suicide by biting themselves. That is sheer nonsense. They could not do it if they wanted to, for every venomous snake is immune to his own poison, as well as to that of other venomous snakes. And you, Mr. King Snake, although not poisonous yourself, enjoy the same immunity against our friends Mr. Rattler and Mr. Copperhead. But that, I might hint, does not warrant you in swallowing them whole, as some of your family have been known to do when a disagreement arose.

"The little green snake here at my side has often to flee from men, though he is the most innocent and dainty reptile of us all and is in reality a friend to man. He eats grasshoppers, crickets, the smooth larvæ of moths, and many other insects that work men more or less harm.

"I myself am an example of the injustice men visit upon us. My family and I live almost entirely on the rodents of the field. If we were placed in a barn we should catch more mice and rats than the best cat that ever lived. Yet this very morning I was obliged to flee for my life from a boy who brandished a hoe at me.

"You see, my friends, how unfair the whole situation is. But it would be fatal for us to declare war on mankind. The most of us could do man no harm whatever, and the two venomous species represented at this board would quickly be exterminated. But even if we could make war, I don't believe it would be necessary. Men are at bottom reasonable, I believe, and the cause of their cruelty to us is their ignorance of our real natures.

"What is needed is an active publicity campaign setting forth why we are entitled to our lives and even to some consideration. We must appeal for justice. Besides this, we must live up to the good things the naturalists say about us. Men may finally come to understand us and permit us——"

The sentence was interrupted by the sound of a hunter's foot on the ledge. Every snake scurried for cover, including the speaker, for it realized that its being alive was necessary to the execution of the plans it had suggested. If the hunter had been a little nearer he would have seen that the rattlesnake and the copperhead made off fully as fast as the others.

Taking Stock.

By EDGAR MENDENHALL, *Assistant Professor of Education, S. M. T. N.*

At least once each year, and sometimes more frequently, the successful business man makes a careful invoice of his stock. He balances his profits and his losses that he may be assured his business is going as it should. If he finds a loss or discovers his business is not making satisfactory progress, he goes over every detail to find the cause. His method is systematic and thorough. He applies to his business certain definite business standards. There is no guesswork. He is sure of his ground.

If a canvass was made of the schools known to the reader of these words, one wonders how many of these schools would be found run upon the same sound business principles, how many are taking a careful inventory of their educational stock. One wonders how many teachers of these schools are absolutely sure their pupils are making the progress they should make, how many of the superintendents and principals of these same schools know how their schools rank in the knowledge of the fundamental subjects with the leading schools of their state and couuntry.

A few years ago the absence of the knowledge indicated in the foregoing paragraph was pardonable. Teaching was less scientific, less tangible than now. Estimate of teaching results was largely a mere matter of opinion. No way had been devised to measure the pupils' progress by fairly definite standards. Taking stock of the teachers' work accurately was well nigh a hopeless task.

It is very different now. A number of standard tests easily used, and based upon fundamental principles, have been devised, and by them the educational progress of children may be known from time to time.

The use of these tests has distinct worth for the following reasons:

(1) They furnish fixed objective standards. This fact gives them high value. They are much like measuring sticks in that they do not change. Different teachers and schools may use them and compare results. The same school may profitably use them from time to time and gain definite knowledge as to the attainments of its pupils. On the other hand, the ordinary mental standards are not stable even with the same individual. They frequently shift within a wide range as often as the bodily tone changes.

(2) The use of standard tests points out more clearly individual differences within a class. Pupils of superior ability, the average pupils, and pupils of superior capacity are set off from one another with greater definiteness. The retarded pupil can then be given the attention he needs, and the pupil who is ready for advanced work need not be made to mark time.

(3) Standard tests help disclose specific difficulties of pupils. Some of the writing tests may show that a pupil needs to correct the spacing between letters and words, or perhaps to remedy alignment, quality of line, letter formation, etc. Reading tests may indicate that a child reads too slowly or ranks low in comprehension. Algebra tests reveal typical

errors. What a wonderful help such knowledge would be to every teacher! It would do away for the most part with "shotgun" methods. There would be fewer pupils "overtaught" and fewer "undertaught." There would be less waste of both teacher's and pupil's energy.

(4) The use of standard tests may well aid a superintendent in planning a course of study. They would indicate the drill needed in particular grades. They would disclose whether too much work of a certain kind was done in a grade, or too little. The capacity of pupils of particular grades should by the use of tests be made to stand out more clearly.

(5) It is advantageous to those in charge of a school system to know how their school compares with other systems. It is possible to make these comparisons by the use of standard tests. Many schools have used these tests and the results are recorded. It would undoubtedly give great satisfaction to one to know that his school was in the vanguard educationally. It should be a spur to greater effort if it was found that his school was a laggard.

The argument for the use of standard tests could be prolonged, for there is much that could be said in their favor, but it is unneccessary. Their actual use has demonstrated their worth. No one pretends that they are a "cure-all" for every educational ill. They are no substitute for the skillful, inspiring teacher. I can conceive of nothing that will ever be such a substitute. What standard tests do above all else is to furnish an educational diagnosis, if a medical term be pardonable here.

Many tests have been devised that may be purchased cheaply and are in usable form. Among those that might be mentioned are the Ayers, the Freeman and the Thorndike Writing Tests; Kansas Silent Reading Tests, the Gray Reading Tests, and the Brown Reading Tests (the names of the last two tests are the names of men, not names of colors); the Courtis Arithmetic Tests, and Woody's Arithmetic Scale; the Buckingham Spelling Scale, and the Ayers' Spelling Scale; the Standardized Practice Exercises in First Year Algebra, devised by Rugg and Clark; the Hillegas Composition Scale, and Harvard-Newton Scale.

Books that might prove helpful on the use of educational measurements are now appearing. "Educational Measurements," Starch; "The Scientific Measurements of Class Room Products," Chapman and Rush; and "Educational Tests and Measurements," Monroe, DeVoss and Kelly, have come to my attention.

The use of some of the tests will furnish a beginning in the adoption of scientific business methods in schools. Even a partial invoice of one's educational resources is well worth while, but the more completely that a school can systematically take stock of its educational assets, the more nearly may it be ranked as using modern business methods. The school that does this will increase its efficiency and merit the respect of those who support it.

Over the Top.

Batteries C and D of field artillery, including Forty-seventh S. M. T. N. men, marched away from Camp Brandenburg at the Normal October 1. An hour later they were aboard train for Fort Sill, where they were to receive the most of their training for the battlefields of Euurope.

As the batteries marched across the campus and past Russ Hall for the last time at least until the war is over, mingled feelings were aroused in the onlookers. But only the pride that students and teachers had in the men who were going forth into the service of the nation was given utterance. The young soldiers were cheered and from many windows of Russ Hall a farewell was waved them. The artillerymen shouted and waved in return. They had been eager to go. But in the heart of many a man there was doubtless a twinge in marching away from the school that had been, in a sense, home for him.

But they did not look back. They strode off the campus as if they were coming back to-morrow, and swung up Broadway on their way to the train.

Fifteen thousand persons are estimated to have crowded the streets about the Frisco depot that day to see the soldiers off. There was no opportunity for a ceremonial farewell. Relatives, close friends and sweethearts pushed their way through the crowd to say goodby. There were many wet eyes. But the soldiers cheered for Pittsburg and its good people and warded off all sombreness. Major Roy F. Waring, who had become popular with Pittsburgers, stood on the rear platform and waved at the crowd as the train disappeared down the track.

Pittsburg women had made 1,400 sandwiches and stowed them on the train so hunger should not trouble the men before they reached the mess room at Fort Sill. A quantity of food had also been prepared at the Normal cafeteria, which had been the batteries' mess hall, in anticipation of the trip.

The batteries had been in camp at the Normal since August 5. Their officers stated that they had the best temporary quarters of any units of the Kansas National Guard. The men had taken care of the buildings as scrupulously as if they planned to camp in Pittsburg always.

Henry Minges, who was in school year before last and could have taken his degree this year, is a first lieutenant in the aviation service. He is now in training at the aviation school near Urbana, Ill. He enlisted in June, joining the Seventh engineers, and was stationed at Fort Leavenworth until October 1. Lieutenant Minges visited the Normal October 5. His home is at Frontenac, Kan.

Harvey Mullen belongs to the Seventh engineers at Fort Leavenworth. He is a drummer in company D. Mullen was in school last winter.

A. S. Parr is a member of the military prison guard at Fort Leavenworth. Parr would have been a senior this year had not Uncle Sam needed him.

R. R. Green is a sergeant in the Rainbow Division. His address is Company No. 7, 117th Ammunition Train, Forty-second Division, Garden City, Long Island. He writes that he expects to see France this winter and that his experience with the National Guard at the Mexican border comes in quite handy now.

M. W. Slattery, who is now at Camp Mills, Long Island, writes that he expects an appointment in the aviation service. He may be assigned to balloon work or commissioned as a ground officer.

Howard Burns is in the hospital service at Fort Logan, Colo. The Y. M. C. A. is doing a great work for the soldiers there, he says.

Archie Gillenwater, who enlisted in the navy's hospital service, was a visitor at the Normal October 22 while on furlough. He was being transferred from the Great Lakes training station to a coast hospital.

Lloyd L. Hartman is in the navy. He was in the training station near Chicago at the last word from him.

Edward Flottman, in battery D from Kansas at Camp Doniphan, writes that he is studying French preparatory to his trip abroad. He says Spanish also and a number of other subjects are being taught by the Y. M. C. A. at the camp.

Lieut. R. A. York, of the regular army, is somewhere in France. He went there in September, after being stationed for some time at Fort Monroe, Va. His address is C. A., U. S. R., Heavy Artillery Training Camp, A. E. F.

G. E. Gill and R. F. Gill are members of the national army and are at Camp Funston.

Fred Donaghy, assistant professor of biology, told faculty and students good-by October 25 and reported at Fort Leavenworth that night for duty as a soldier in the medical corps of the regular army. He had enlisted at Fort Wayne, Ind., in August while on a vacation trip. His work will be that of a serologist in the laboratories of the medical corps. Professor Donaghy said, in his talk at the assembly, that he was sorry to give up school work, but that he could not rest content when the government was calling for men skilled in the sciences that make for the saving of life. He had been a member of the Normal faculty for one and one-half years, having come here from Indiana, where he had been head of the science department in a Terre Haute high school. Professor Donaghy holds his master's degree from Indiana University.

Functioning of Industrial Arts.

If you wish to understand the statement that "the purpose of education is to bring to the individual those experiences which will make their future action more efficient," talk with the parents of your pupils in regard to the hopes which they have for their children. You will find in practically every case that they desire for them a more complete life than they themselves had; fuller of those opportunities and experiences which have to do with bettering the social and occupational side of life.

In earlier periods, education, both social and occupational, was in the home. As conditions change, society, for its own advancement and protection, takes over gradually those factors which have to do with the

social and civic side of life; and is to-day concerning itself with the future occupational life of the child.

The fact that the amount of information available in any line of activity is constantly increasing, while the opportunity to acquire experience in any line is constantly decreasing because of specialization, has caused society to realize that it must, for its own good, make provision not only for the professions but for the rank and file of workers.

From all lines of activity comes a demand for men and boys who can think, who have common sense, who have intelligence. This means men and boys who are able to form judgments. Changed conditions have taken away from the home and the community many of the opportunities for receiving experience upon which to form judgments, in most of the occupational lines; and we have not replaced many of these by organized experiences in the schoolroom.

All our schools are providing better than ever for the social and civic side of life, and many are introducing industrial, commercial and agricultural courses. Some, however, are much criticized in that the work functions so little with actual practice. If we, as teachers of industrial arts subjects, wish to make our work function with life we must furnish the pupil with such experiences as will make judgments possible when he enters upon life's work. If we are so situated that it is desirable that judgments be formed in only one industrial field, then we need to confine our work entirely to that field. If it is desirable, however, that the pupil be able to form judgments in other fields, then he must be given some basis on which to form them.

In the shop work itself how often do we ever stop to make an analysis and endeavor to determine how much of it is needed for general education? how much is truly fitting for a vocation? or how much is catering to the constructive instinct of the pupil? In any case, if it is to be of value as a basis for forming judgments, some attention needs to be given to a study of the material itself, its place in industrial life, modern manufacturing methods, as well as training in manipulative skill and constructive knowledge.

In the functioning of industrial arts courses in a community the most successful teacher will be one who knows the pupils, the community activities and its needs, just as a manufacturer knows his material and customers.

He must select for instructional purposes, from one or more lines, those experiences which will best serve as a basis for forming judgments, according to the needs of the community and the nation.

In his classroom, in addition to giving a training in manipulation skill and construction, he will see that some information is acquired about the industrial world through readings and discussions, so that his pupil may have a basis upon which to make an intelligent choice of a vocation. The extent to which the work functions will be finally determined by its value to the individual as he enters his life work. H. C. G.

Something Doing at S. M. T. N.

OPPORTUNITY COURSES.

State Manual Training Normal, 1917-1918.

A recent government bulletin, commenting upon what the technical and industrial schools might do in the emergencies which have arisen because of the war, says: "While a large army is being recruited and trained for military service, a much larger army is of necessity training in preparation to equip and support our soldiers and sailors. The call to military service is taking a large number of mechanics whose places in industry must be filled. Industrial and technical schools in industrial centers should organize in such a way that the regular courses may be available at any time. In addition, special courses adjusted to emergency conditions should be organized along those lines for which there is a marked demand due to the changed industrial condition."

You will be glad to learn that S. M. T. N. is doing her bit along this line. In addition to special work during the day, evening courses are offered. Since October 15, "Opportunity Courses" in electrical machinery, telegraphy, automobile work, machine-shop practice, architectural and mechanical drawing, woodworking, mathematics, stationary engineering, mining, shorthand, typewriting and other commercial branches have been taught. On November 1 the enrollment in the evening classes was 250, a figure which was very gratifying to the committee in charge.

One of the pleasing features that has developed in connection with this work is the attitude which the War Department is taking in regard to the courses. A letter received from the headquarters of the Central Department, in answer to one regarding the training of telegraphers for the United States army, contains the following statements:

"In answer to your letter of October 19, the department signal officer directs that you be advised that one of our standard learner's outfits will be sent to you by express immediately. This apparatus is supplied on loan account and is to be returned to this department when you have finished using it. The outfit consists of ten sending and ten receiving instruments, and should properly care for a class of twenty men.

"You understand that this department has supervision over the work only in an advisory way, it being the plan to solicit the patriotic cooperation of institutions similar to yours throughout the states of the Central Department, asking them to consider it their patriotic duty to offer the necessary facilities in class instruction to registered men in order that they may be equipped for a desirable branch of army service.

"The fact that you are operating classes other than those in telegraphy should be of material benefit to the army, assuming, of course, that there are registered men enrolled in them. This is particularly true of your class in electrical machinery and machine-shop practice.

"This department is listing your school as one of the operating schools in the Central District, and it is requested that semimonthly reports, similar to the one attached hereto, be sent to this office, indicating the progress of your class work. It is also requested that you list on your report only men registered for draft in the next and succeeding calls."

It should be gratifying to the alumni and friends of S. M. T. N. to know that this institution voluntarily offered these courses without solicitation from the government.

The government wants to place every man who is conscripted where he is best qualified to serve. In the army there are three branches of the service whose business it is, not to do the actual fighting, but to support our troops with transportation, communication and supplies. Large numbers of mechanics and technicians are needed in these fields.

The duties of the men in the quartermaster's corps are to perform the work of their particular trade or business incidental to the transporting of troops and furnishing them with supplies of every kind, including their food, clothing and equipment. It is in this department that large numbers of automobile mechanicians and drivers are required, as well as those with experience in commercial lines.

The duties of the signal corps are to maintain communication between the various major units of a command and between one or more field armies. It is in this field that electricians, telephone, telegraph and radio operators are greatly needed.

Large numbers of mechanics and technicians are also needed in the aviation corps, especially men who are familiar with gas engines and gas-engine ignition.

It was to help in the training of just such men that part of the courses described below were placed in the "Opportunity Curriculum."

The course in electrical machinery, as presented in the night school, consists of two terms of ten weeks each, the class meeting three nights a week. Careful attention is given to the operation of all ordinary electrical machinery and as much theory is taught as time will permit. Topics of the first term include electric and magnetic currents, electromotive force, armature winding, electric heating and power, direct-current distribution, D. C. motors, and divided circuits, besides numerous related topics. The course is an especially fine preparation for men wishing to pass the examination for navy yard electrical jobs.

The course in machine shop technic includes individual instruction in the principles of operating such machines as the drill press, engine lathe, shaper, planer, milling machine, and grinder. There is also abundant opportunity for practice on the various machines, as the experience of the student justifies.

Woodworking also receives a full share of attention. The setting up, sharpening, care and upkeep and operation of the common woodworking machines is taught. The machines studied include the joiner, universal saw, planer, tennoner, band saw, sander, and sharpening machines. They are used in working out commercial projects, the methods being modeled as closely as possible upon the actual work in a mill. Cabinet making is also offered.

Supplementing these mechanical courses are classes in plan reading and estimating, machine drawing, and architectural drawing. The practical phases of these subjects are emphasized and are so taught as to be immediately useful.

The electrical side of the motor car is given two courses, one for private owners of cars and the other for garage men. The course for

owners of cars is designed to give them such an understanding of this side of their machines as to enable them to do much repairing that would otherwise have to be sent to the garage, and also enable them to get out of difficulties while on the road, which usually puzzle the motorist. The course for garage men goes into the electricity of the car most thoroughly, and is designed to save them much time by teaching them to diagnose car troubles with certainty. Topics include the various types of electric control, multi-cylinder battery ignition, batteries, storage batteries, their construction and use, magnetos, generators, starting of motors, method of connections, lighting circuits, etc.

The course in telegraphy is designed to help the government in its call for 20,000 telegraphers. It is also open to women who wish to prepare themselves for the positions men have left in order to go into military service. Oscar Sharp, for eight years Pittsburg manager for the Western Union, is in charge of the course.

The class in mine gases, ventilation and haulage is overflowing. Men who expect to take examinations for positions as mine foreman, fire boss or gas man are in the class. The twelve lessons are illustrated with numerous experiments, and topics that make for safety in mining are given special attention. Tests for the presence of the various gases are shown.

The commercial department is giving courses in shorthand, typewriting, dictation, letter writing, spelling, bookkeeping, penmanship, and business arithmetic. The government needs persons prepared in these subjects for its civil service; the business world needs them to take the place of the office workers who are entering the army. The work offered is so planned as to give the necessary training in the shortest possible time. Review classes are also conducted.

Other mathematics besides business arithmetic that are taught are mathematics for carpenters, for machinists, for electrical workers, and for stationary engineers. The aim is to give each student the mathematics of any particular machine or topic that he desires.

Show-card writing is taught, where instruction is on the individual plan. Practical alphabets, good composition and effective color schemes are taught.

Dean Hattie Moore-Mitchell is encouraging the women students to keep a checking account at a bank, even though the account would be quite small. They will thus have a receipt for everything they pay out, she says, and avoid misunderstandings about room and board bills. The bank habit is also conducive to economy, she reminds the girls.

A large orchestra of superior quality is assured for the school year. It happens that the Normal has a larger number than usual of students who are skilled musicians with some orchestral instrument. The orchestra appears at assembly at least once a week, besides on special occasions. Rehearsals began early in October.

The Polymnia Club likewise promises to outstrip its predecessors in artistic attainments. Its membership is limited to sixteen and only girls who have had or are taking voice culture are eligible. It has now been in training for some time and will be ready for an early concert season.

S. M. T. N. Extension Work.

The fourth year of the existence of the State Manual Training Normal's extension division finds it doing a big work in southeastern Kansas, a work that promises to exceed in the number of classes that of last year. And last year was a year of phenomenal growth, too, when unsettled conditions due to war did not have to be coped with. The system of carrying the college to the teachers in the field has become a permanently established and a big part of the Normal's functions.

The plan is now nearly too well known in the territory the Normal serves to need description. Study groups organized in various towns and cities are met once a week or every two weeks by a number of the faculty. A conference approximately two hours long is held. Extensive readings and the writing of reports supplement the conferences to make the equivalent of a college course for which college credits are given.

The Normal has so familiarized the plan among its constituency that most persons acquainted with it are probably unaware of its uniqueness. Only a few other institutions in all the country use it, however, and none has made it nearly so important a means by which the teacher, or others, may continue her education while actively engaged in her profession.

A partial list of the classes organized for the fall term, giving town, subjects and instructors, is given below. It is partial only for the reason that other classes were about to be organized when it was made up early in October, and that classes continue to organize until late in the fall. Groups of teachers or others who wish a class for the second, or spring, semester should make application at once.

FORT SCOTT.—Modern Education, D. M. Bowen; Public Speaking, R. E. Graham.

GALENA.—Spanish I, S. J. Pease; Social Biology, O. P. Dellinger; Latin in English, S. J. Pease.

PITTSBURG.—Physics, Ernest A. Bureau; Economics, O. F. Grubbs; Astronomy I, J. A. G. Shirk; Vocational Mathematics, J. A. G. Shirk; Physiography, E. E. Roseberry; American History, J. F. Mitchell; Botany, Fred Donaghy; Interpretation, L. N. Pierce; Bookbinding, Vivian Atwood; French II, Ernest Bennett; French I, Ernest Bennett.

CHANUTE.—Applied Arts, H. C. Givens and Vivian Atwood.

PARSONS.—Astronomy I, J. A. G. Shirk; American History, G. W. Trout; Nature Study, W. E. Ringle.

CHEROKEE.—Psychology of Elementary Subjects, W. D. Armentrout.

ST. PAUL.—European History, O. F. Grubbs; Nature Study, W. E. Ringle.

CHERRYVALE.—Art Metal, H. C. Givens and Vivian Atwood; Modern Education, D. M. Bowen.

SAVONBURG.—Bacteriology, Fred Donaghy.

CHETOPA.—Educational Measurements, Edgar Mendenhall.

LANSING.—Nature Study, W. E. Ringle.

SCAMMON.—Applied Arts, H. C. Givens and Vivian Atwood; Industrial Geography, E. E. Roseberry.

EUREKA.—Social Biology, O. P. Dellinger.

FRONTENAC.—Bacteriology, Fred Donaghy.

MINERAL.—Social Biology, O. P. Dellinger.

MULBERRY.—Public Speaking, R. E. Graham; Interpretation, R. E. Graham.

ARMA.—Social Biology, O. P. Dellinger; Nature Study, W. E. Ringle.
MOUND CITY.—Reading Circle, D. M. Bowen; Public Speaking, R. E. Graham.
PLEASANTON.—Public Speaking, R. E. Graham; Reading Circle, D. M. Bowen.
ARCADIA.—Psychology of Elementary Subjects, W. D. Armentrout.
LA CYGNE.—History of Education, D. M. Bowen.
INDEPENDENCE.—Educational Psychology, W. D. Armentrout.
JOPLIN.—Sociology, G. W. Trout.
IOLA.—Sociology, G. W. Trout.
OSWEGO.—Sociology, G. W. Trout.
WEIR.—European History, O. F. Grubbs.
COFFEYVILLE.—Sociology, G. W. Trout.
COLUMBUS.—American History, Geddes Rutherford.
PERU.—Industrial History, O. F. Grubbs.
GIRARD.—Economics, O. F. Grubbs.
EDNA.—American History, Geddes Rutherford.

For Parent-Teachers' Associations.

A series of lectures for parent-teachers' associations that may be used as the basis of a course of study for which college credit will be given is offered by the Normal's department of education. The aim of the department is to make it possible and practicable for such associations to plan their activities with a definite end in view; to get somewhere, in other words.

The course, it is believed, offers a pleasing change from the miscellaneous hit-and-miss programs usually heard at the meetings of parent-teachers' associations. It makes possible a really coöperative study by parents and teachers of the child and his development. The whole membership of the department, which includes critic teachers of wide experience, will be used in giving the course.

Seven or eight lectures, coming at intervals of two or four weeks, will comprise the course. Where in the associations there is a group that wishes to enroll for credit a list of readings to supplement each lecture will be furnished. The public libraries of the cities where the course is given will be asked to make up a bibliography for each lecture, so that references may be readily available.

Parent-teachers' associations wishing the course should write to Prof. D. M. Bowen, director of the department of education. Prospects now are that it is going to be much in demand. The expense is quite small.

Our Eleven.

Although the S. M. T. N. football eleven this fall included only one man who had belonged to the brilliant 1916 team, its first three games set a pace that was a pleasing surprise to all loyal students and alumni.

After the first game, which was with Emporia, at Emporia, October 6, Coach R. O. Courtwright predicted that his men would develop into one of the strongest elevens in the state. The score had been 24 to 0 in favor of the older Normal. Yet despite the fact that Emporia had seven

or eight old men in the line, Spurgeon, full back, carried the ball over for a touchdown for the Manual Training Normal in the first quarter of the game. Had the inexperienced back field not set itself in motion too soon, the touchdown would have counted. It was only the errors of inexperience, not lack of football power, that spoiled other chances of scoring or gave Emporia its chance.

Friends' University was defeated on the Pittsburg field October 12, the score being 3 to 13. At Tulsa, on October 20, the eleven held Kendall College to a scoreless contest, a result considered in Pittsburg as the equivalent of a victory. In these battles it was skillful team play instead of the spectacular achievements of stars that made the good showing. The team reaped the harvest due it because of its faithful, persistent and strenuous work in training.

In the Tulsa game the line was as follows: Center, Grabske, of Kansas City, Kan.; left guard, Doughman, of Altamont; left tackle, Bowman, of Altamont; left end, Ellis, of Iola; right guard, Fleming, of Iola; left tackle, Spurgeon, of Kansas City, Kan.; left end, Smith, of Independence; quarter back, Phillips, of Lamont, Okla.; right half back, Scott, of Greenleaf; left half back, Talbert, of Pittsburg; full back, Lance, of Pittsburg. Lance was the only man who was on the 'varsity team last year.

Let's Get Together.

QUERY: Will you give me directions for making a solution in which to develop blue prints, also the name of the company that handles blue-print material?—D. R. S.

ANSWER: Blue prints are developed in clear water, according to directions furnished with the paper, taking care to give ample time for thorough fixing and washing, either by leaving in running water for twenty minutes or passing through four or five changes of water. A better method is to use potassium bichromate. Place enough potassium bichromate in the water to give it a slight tinge of color. The potassium bichromate may be placed in a bag, which can be put in the tray. With this solution the blue prints will develop quickly in full color of blue and pure whites, and may be dried immediately over a radiator. This solution may be used repeatedly.

If you encounter a knotty point, or are working against the grain, refer the trouble to the S. M. T. N., and your letter will be referred to the proper department for the answer.

THE TECHNE, which is to be issued ten months in the year, will be mailed free to teachers for the asking. The aim of the editorial committee is to make it so good that when you read one copy you will want all that are to follow.