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Soured Milks

SOURD or curdled milk has been used by various peoples since very early times. Metchnikoff mentions two instances in the Hebrew Bible where reference is made to the use of soured milk as a food or beverage. One of these references (Gen. 18:8) states: "When Abraham saw three men approaching he invited them to enter, and offered them some sour milk, and some sweet milk, as well as some veal that had just been brought in." Again in Deuteronomy (32:14), Moses enumerates the different foods which Jehovah accorded to his people—"He made them to eat of the soured milk of cows, and of the milk of goats, with the fat of lambs and sheep, of the animals of Bascan, and of bucks with the fat of the kidneys."

Later the Greeks and Romans also recognized the strengthening and tonic effects of sour milk. They used a special kind of sour milk, called "schiston," which formed an important part of the peasants' food, and was never absent from the tables of the townsmen. Pliny relates that after the great festivals of the patricians, the curdled milk was never forgotten at the end of the meal. Their curdled milk was called "oxygala."

The names given to soured or fermented milks differ widely in various countries. The nomadic tribes of Algeria and Tunis, and the Arab have a soured

milk called "rayet," or "raib"; in Egypt the preparation is termed "leben"; while the Sardinians have a milk called "gioddu."

Fermented (soured) milks have evidently been extensively used by the people of southern Russia, Turkey, the Balkan countries, and their neighbors for many centuries. The natives have no records and few traditions of the origin of the milks they use, and it is probable that their preparation and use developed gradually by accident and experience. One of the first of the fermented milks known to Europeans was the "kefir," made in the Caucasus Mountains and neighboring regions, from the milk of sheep, goats, and cows. Kefir differs from most of the fermented milks of the Mediterranean countries in that it is made from a dried preparation, and contains alcohol. Kefir is made under varying names, as "hippe," "kepi," "kephir," "khapon," "kiaphir," "kaphir," and "kefyr," all of which are said to come from a common root signifying a pleasant or agreeable taste.

The missionary monks and other wanderers who first penetrated the treeless plains of European Russia, and central and southwestern Asia tell of a fermented mare's milk, called "kumiss," "koumiss," or "kumyss." In Asia Minor, Servia, Roumania and Bulgaria, the best known soured milk is "yaowith," "yo-

ghurt," "yogurt," "jugurt," or "kissélo mléko"; while in Armenia "mazun," and in India "dohi" or "dadhi" is the favorite preparation. Denmark, Norway, and Sweden have a product known as "tyk moelk." Metchnikoff states "soured milk is consumed in large quantities in Russia." There are two forms—"prastokwacha," and "varenetz."

Various fermented milks are found under different trade names in this country. New York has such products as "bacillac," "lactobacilline," "matzoon," and "zoolak" on its market; Philadelphia firms name such milks "fermillas," "kefir," and "lozac"; in Pittsburgh "vitallae" has a monopoly. Other cities in the United States have scientifically soured milks, each with a different name for advertising purposes.

One should remember that all of these milks are very much alike, differing only in preparation, or in flora. These differences may best be shown by noting the nature of soured milks, as to their preparation and composition.

When the term "sour milk" is used, the listener generally thinks immediately of "clabber," which is the ordinary curdled milk. This sour milk is the result of lactic fermentation, but it is not a "pure-culture" fermentation; there are other bacteria associated with the lactic acid germs, which bring about the souring of sweet milk. Usually one may isolate a hundred distinct germs from the unpasteurized market milk, and while some of them are beneficial, the majority cause decomposition, hence they are undesirable.

Buttermilk as produced by the ordi-

nary dairy contains practically the same flora as clabber. The former differs from clabber, however, in some respects. Buttermilk contains particles of butter, and is more even in texture, having been thoroughly churned during the process of buttermaking. Buttermilk and clabber are of value as a chemical food, on account of the presence of lactic acid and finely divided casein, but, on account of the mixed flora in them, these sour milks have not antiseptic effect in the intestines.

Perhaps at this point it is well to explain the various changes which take place in milk during lactic fermentation. When I use the term "lactic fermentation," I do so in a broad sense, so as to include the minor fermentations due to yeasts and other flora associated with lactic acid ferments, of which there are over a dozen different varieties. Just as wines differ in flavor due to the use of different yeast cultures, so do soured milks differ in flavor due to the action of various lactic ferments. When a culture of some lactic acid bacteria is implanted into milk, preferably pasteurized, the sugar content of the milk is changed into lactic acid, due to the action of enzymes. When yeasts are present, a part of the sugar is changed into alcohol. The casein (proteid matter) is finely divided, and the fat globule is split apart. The lactic acid which is formed combines with the ash constituents, probably converting the tri-phosphates to di-phosphates; and monophosphates and the di-phosphate to monophosphate.

The people of southern Russia, Turkey, the Balkan countries, and their

neighbors prepare their soured milk from a dried preparation which contains yeasts, as well as lactic acid bacteria, hence the final product contains a small amount of alcohol. The natives soften the dry "kefir grains" by soaking them in warm water. These grains when softened are placed in sterilized milk, which is usually kept in leather bottles made from the skin of goats. In the summer, the skins are hung out of doors in the sunshine, but in winter they are kept in the house. The bags are frequently shaken during the fermentation. When the fermentation is complete, the soured milk is poured off, and a new lot of sweet milk is added. Sufficient culture is left in the bag for the next fermentation.

Kumiss is prepared in a different manner. Unlike kefir, there is no dried "ferment," or "grains" with which the fermentation of the mare's milk is started. Whenever it becomes necessary to start a new culture, the nomads of central and southwestern Asia add to mare's milk some fermenting or decaying matter, such as a piece of flesh, tendon, or vegetable matter. Thus, a combination of an acid and an alcoholic fermentation is flavored, and the necessary bacteria and yeasts are soon established.

The soured milks of the Mediterranean peoples, "yoghurt," "kissélo mléko," "mazun," "giöddu," and the "leben" are all thick curdled milks, decidedly acid, and with little or no alcohol. The method of preparation is also different. Goat's, buffalo's, or cow's milk may be used. This is usually boiled. The fermentation is brought about by using some of the previous lot as a "starter." There is no dry preparation

or "grains" from which a culture could be obtained.

The soured milks found in America are usually modifications of European soured milks. Some of the American products contain yeasts and fungus in conjunction with the lactic ferment. The varieties of lactic acid-forming bacteria are seldom the same in any two milks. The writer has found a combination or symbiosis growth of the bacillus bulgaricus with the bacillus paralacticus, as recommended by Professor Elie Metchnikoff, of the "Institut Pasteur," gives a most pleasing and agreeable beverage.

With this epitome of the current soured milks, let us look into the many claims made for their therapeutic value.

Despite the fact that newspapers have exploited Metchnikoff's theory of sour milks as a panacea for all human ills, no one having a working knowledge of these preparations will make such a claim for them. It often happens that the work of the best scientist is perverted in the application the world at large makes of it. Many good things in life and science are seized upon by those who purvey ideas for the public, and are converted into fads. Especially is this true of things pertaining to human health, for which mankind has a deep interest. The champions of the soured milk idea would have their followers believe that soured milk drinking is anything but a fad. They ask the layman to reason from scientific facts alone.

Primarily, the whole basis of argument for the therapeutic value of soured milks prepared from pure cultures of the bacillus bulgaricus is symbiosis with

b. paralacticus may be summed up in one statement, that is, these milks prevent putrefactive changes in the intestinal tract. Upon this fact rest all other claims. While I am not prepared to say unqualifiedly that the lactic acid germ is an enemy of the "old age" germ, I do say that in the three countries of Bulgaria, Servia, and Roumania, with a combined population of 12,150,503, there were, according to the last census of 1896, 5,545 centenarians, or one to every 21,911 of the population. In the United States there are 3,504 centenarians, or one to every 25,800 of the population. In the former countries, the common drink everywhere is yoghurt, or fermented sour milk. Typhoid fever and intestinal troubles are practically unknown to them.

In this country, many prominent scientists have encouraged the use of soured milks. Dr. C. F. Langworthy, the chief of the division of nutrition investigations in the office of experiment stations, Washington, D. C., has given much study to the use of the various forms of sour milk as a curative. He has been quoted as follows: "There is every reason to put faith in the use of properly made sour milk. It is a food of distinctive value, and the scientific world does not gainsay its curative qualities within certain limitations." Dr. L. A. Rogers, one of the foremost bacteriologists of the country; and who is director of the dairy division of the Department of Agriculture says of scientifically soured milk: "There can be little doubt of the definite value of the use of the bacillus bulgaricus, or, as it was call-

ed many years ago, the bacillus Caucasus. Yoghurt tried by the experience of the Balkan peninsula has to its credit the wonderful health and longevity of those hardy races."

European savants have done probably the deepest research work on soured milks. Fouard, of the Institut Pasteur, found that in soured milk prepared from the bacillus bulgaricus, 38 per cent of the casein had been rendered soluble by the fermentation, and that 68 per cent of the calcium phosphate had been rendered soluble. These facts testify to the excellent qualities of this soured milk. In the Paris Medical Journal (Vol. I, No. 9) Combe relates how successfully he has treated intestinal auto-intoxication by the introduction of lactic acid bacteria into the bowel. Metchnikoff's views are set forth in a popular way in Chapter Five of his book entitled "The Prolongation of Life." He relates many marvelous incidents as to the therapeutic value of fermented milk. Kern claims to have separated from cultures of b. bulgaricus a substance having a distinct inhibiting action on b. coli communis, the putrefactive germ found in all fecal matter. Professor Chassevant and Gilbert demonstrated at the University of Paris that scientifically soured milk was perfectly digested in one-half the time required for the digestion of pure whole sweet milk. This is due to the form in which the casein of the milk is precipitated.

The most convincing test of all, however, is the personal trial, for after all, "the proof of the pudding is in the eating."

A. H. D. '14

Report of Visit to Telephone Exchange

(Report on visit to the Diamond State Telephone and Telegraph Company's Central Station.)

THE central station of the Diamond State Telephone Company is located at Sixth and Shipley streets, Wilmington. It is a large, three-story, steel and stone building and is as nearly fire-proof as modern building construction can make it. It is, however, protected with most up-to-date fire-extinguishing apparatus because of the inflammable nature of some of the wire insulations, and because of the immeasurable loss to the community which a disastrous fire would incur.

The sole business done in this station is the operation and maintenance of the Wilmington branch of the Diamond State Telephone company. About 100 people are employed, 50 of whom are telephone girls. These girls work in 8-hour shifts and take care of 5,700 lines which aggregate 9,700 subscribers.

OPERATION

The telephone lines of the Wilmington branch are arranged in such a manner that they all converge in a number of large leaden cables which enter the station underground.

First Floor—From the basement these cables pass up to the first floor where they open and the individual lines pass through what is called the "First Frame." This frame has lightning arresters on it and conducts the wires in such a manner that a subscriber changing his residence from one part of town to another can be given the same telephone number.

The wires pass from the first frame to the "Intermediate Frame." On this frame are electric relays which operate the operator's signal lamps when the subscriber lifts the receiver from the hook.

A "Third Frame" contains various other relays and cut-offs which operate the auxiliary signals. Each of these frames is large enough for about twenty years growth.

On the first floor are also motor-generator sets which convert alternating current of a high voltage into direct current of low voltage. This low voltage current is used to charge the storage batteries from which the ringing current is supplied. Here, too, are small instruments called dynamotors which, by varying the number of electric alternations, enable the operator to get what are called the "tone test," the "busy test," and the "out-of-order test."

The *Test Table* on this floor is also very interesting. To this table all the line troubles are sent and from one to four men are kept busy day and night locating and trying to remedy all troubles from broken wires to receivers left off the hook.

Second Floor—The second floor is at present unoccupied, but in some future time the growth and expansion of the Wilmington Central station will be enough to warrant the installation of a second operating table and the second floor will be utilized.

Third Floor—On the third floor is the *Operating Table*. The wires from the first floor come directly to this table

and are connected to various pilot and signaling lamps through a maze of coils and connections which can scarcely be traced. Each girl operator has before her an *Answering Jack* which contains about twenty-five subscriber lines. Above the answering jack is a *Multiple Jack* which has all the lines of the station in it.

At one end of the table are the long distance operators who, in addition to answering calls, operate the "Calculigraph." This instrument is simply a clock by means of which the length of calls is accurately registered. The operating table is not nearly filled and will not be at the present rate for about ten years.

On the third floor, also, are the girls' rest and lunch rooms. A matron is in attendance during the day and the girls are furnished by the company with coffee.

CONCLUSION

1. The fire protection and general layout of the station are nearly perfect.
2. The operation is as free from mistakes as the improved system can make it.
3. Great foresight has been shown, not only in the matter of abundant floor space but also in the installation of abundant apparatus.

C. H. B. '14.

John Barrington Reeves

JOHN Barrington Reeves was very much ashamed of himself. He stretched out in bed, yawned, and finally rose. His valet entered, rescued his master's hat from the basin, took the dress coat out of the fireplace, pulled down the trousers which sat jauntily astride a picture, folded them neatly, and put them away with many deprecatory pats.

While he was dressing, Reeves tried to reduce his jumbled thoughts to order. Last night,—no,—the night before last, he had been to see Margaret Van Schuylicht. He had proposed. She had rejected him,—said he was leading an immoral life,—a life unworthy of the man who was to be her husband. How glorious she looked as she said this, with a proud toss of her head. Immoral, she had said. She couldn't mean that. He

only occasionally took a drink, and such drinking wasn't immorality. There wasn't a thing in his record against him, except that he was a college graduate, and she ought to overlook that.

Well, he had gone back to Broadway, resolved to do something that would give her grounds for her charge. He had stopped at the — Theatre and picked up Dulcie Shaw, who was in the chorus of "The Follies of Broadway." They had gone to Champignon's and had lobster and a few other odds and ends. He remembered meeting a Captain Cowles, who was really a splendid fellow. He had spent the night at Cowles' club somewhere in West 51st or 57th street—he didn't know which. They whiled away yesterday with a most interesting game, originated by Cowles. Reeves

and a jolly sport named Black constituted a side against Cowles and somebody else. They had sat near a large window of the club watching the passers-by. Whenever a negro passed up the street, he and Black had to pay over ten dollars to Cowles and the other fellow; whenever a negro passed down the street, he and Black received ten dollars from Cowles and his partner. He must have lost about two hundred dollars when a negro funeral went up the street. That almost broke him. Then there was supper and a night at Champignon's. A taxi fitted in here somewhere but he could remember no more.

He sighed after this mental labor and finished dressing. On his way to lunch he met Tommy Shields.

"Tommy," said Reeves, abruptly, "do you know a Captain Cowles?"

"Yes," replied Tommy, slowly, "what about him?"

"Anything wrong with him?" asked Reeves, surprised at his manner.

"I'll tell you, Chick—I know you'll take this in the right spirit—he's one of the worst rascals in New York. Got fired out of the army for the good of the service. He was named in a divorce case, and has just got out of trouble over a crooked stock deal. His latest escapade is being caught in a raid on the tenderloin. He spends freely; but nobody knows where he gets his money. He's trying to break into good society now and —"

Suddenly Reeves remembered that Cowles had mentioned Margaret's name and he with drunken *bonne camaraderie* had volunteered an introduction. He ground his teeth. Tommy, finding

Reeves too thoughtful a companion, left him.

The seed was sown. Reeves bitterly reproached himself for his folly and his smug self-satisfaction. His whole soul revolted against the life he had been leading. Margaret was right. Bless her. Bless all the women,—our good angels. With her help he would make a man of himself yet.

He sent for his car and went up to "The Willows" to see Margaret. On the way up he formed many good resolutions and constantly reviled himself for his conduct.

Miss Van Schuylight received him coolly in the beautiful drawing of "The Willows."

"Margaret," he burst out, "You were right. I'm a beast. I'm going West to ranch for two years, and come back to you, worthy of your love."

Margaret's face brightened. "O John," she said and could say nothing more for a moment.

An hour later the radiant Reeves jumped into his car. "Pennsylvania Station, Harry," he shouted gaily to the chauffeur.

* * * * *

Two years after his departure John Barrington Reeves swung into a Pullman car at a little Western way-station. It was a different Reeves from the Broadway roué—a tanned robust Reeves. He was going back to New York. The speeding train bore him to the reward of his two years' labor. His heart sang more loudly within him with every mile of the journey. As the flat Western landscape flew past, he pictured his reception. He saw in his imagination her

happy smile as she greeted the lover from whom she had not heard for two years,—for Reeves had religiously refrained from writing. After the long journey, the train pulled into Philadelphia. He bought a New York paper. A picture on an inner page caught his eye. It was Margaret's. Under it he read:

"Miss Margaret Van Schuylight, who

will marry Captain Benedict Arnold Cowles, formerly of the United States Army, next Tuesday at 'The Willows.' "

Harry, Reeves' chauffeur, greeted his smiling master at the Pennsylvania Station in New York.

"Champignon's, Harry," said Reeves as he jumped into the waiting car.

L. C. S. D. '15.

Report of Sewage Plant

OUR PARTY arrived at the Back River Sewage Disposal Plant of Baltimore, Maryland, 10.30 a. m., Wednesday 10, 1913. The plant is situated about five miles down the Chesapeake Bay from the city of Baltimore. Mr. Neal, the constructing engineer, met us at the office building. Our inspection began immediately, Mr. Neal leading the way and talking continuously. He first showed us the office and laboratory building.

OFFICE AND LABORATORY

In this two-story building are the offices of the engineer, the chemical and bacteriological laboratories, a dark room, and a drafting room. Reports are submitted daily by the engineer to the head offices in Baltimore. In the laboratories are made frequent tests of the raw sewage and of the sewage at different points in its course through the plant. The principal bacteriological tests are those for putrescibility, and for the presence of acid forming bacteria. The putrescibility of the sewage is determined by the methylene blue process. After the methylene is applied to a sample of the sewage, the sample is corked up and

allowed to stand for a month. If the blue color fades out in this time the sewage is putrescible. Acid forming bacteria are detected by growing the bacteria present on a medium containing blue litmus. We saw several of these bacterial growths on circular plates. The plates which had been treated with raw sewage contained innumerable red spots; those which had been treated with the effluent contained only a few such spots. As the acid forming bacteria were the cause of the red spots, the number of such showed the number of acid-forming bacteria present in the sewage. The chemical tests made on the sewage are tests for nitrates, nitrites, and ammonia. From one of the second story windows of this building we obtained a general view of the whole plant.

The sewage commission has a plot of land containing 450 acres. All of the ground is not now in use, nor is the plant caring for the sewage from the entire city. Provision has been made to allow ample room for enlarging to care for the sewage from the entire population of Baltimore (200,000 of the 700,000 inhabitants now contributing). The course

of the sewage through the disposal plant from the outlet of the main sewer to the Chesapeake Bay is as follows: Screening chamber, diverting chamber, meter house, hydrolytic tanks, (sludge collected here and pumped into digestion tanks), distributing house, percolating filter bed, settling basin, turbine, Chesapeake Bay.

SCREENING CHAMBER

As we left the office building we passed a steel framework supporting two large tanks. One tank holds fresh water for drinking purposes and the other contains purified sewage with a 165 foot head to flush out the percolating filter beds. Beyond this tank we came to the outlet of the main sewer.

The main sewer, which is 12 feet by 11 feet 3 inches, empties into the screening chamber. The sewage is a grayish-brown liquid with paper, wood, and such floating on it. The odor from it is offensive if you have to be close to it but a few feet away on the leeward side, it is unnoticeable. The main sewer diverts here at a fork. Both sides of the fork lead to bar screens (with 7-8 inch bars and 1-2 inch openings) but only one side is used at a time. The screens are under a tile covered shed with open ends. A man with a rake keeps the screens clear. Mr. Neal told us that they gathered twenty wheelbarrow loads of trash at these screens from the 20,000,000 gallons of sewage per day.

DIVERTING CHAMBER.

From this screening chamber the sewage passes into a diverting chamber. Here on the surface of the sewage a light, gray scum had formed. The sewage is diverted into three 42-inch pipes

leading to the meter house and thence to the hydrolytic tanks. Five pipes lead from this chamber through the meter house but, as there are only three tanks now constructed, only three pipes are used.

METER HOUSE

We next went into the meter house, a house about 30 by 30 feet. Here the velocity of the sewage through the 42-inch pipes is measured by a Venturi meter. The measurements of this meter are recorded on a circular chart which is set for a week.

HYDROLYTIC TANKS

From here we went to the hydrolytic tanks. The hydrolytic tanks are three in number and are of concrete, 420 feet long, 103 feet wide, 8 feet deep at the ends and 9 feet deep at the middle baffle walls. The sewage comes from the meter house through the 42 inch pipes into the middle of one end of the hydrolytic tank. A baffle extends partly across the end of the tank to prevent a direct flow of the sewage through it. The bottom of the tank is of concrete and slopes from both ends toward the middle. At the middle is a baffle-wall under which is an egg-shaped drain. The sludge settles in the tank and, because of its specific gravity, 1.04, flows toward the "egg-drain." A pipe, 12 inches in diameter, connected with a pump, carries the sludge from the drain to the sludge digestion chambers. The sludge remains in the digestion chambers as a heavy black liquid for several months. During this time septic action dissolves much of the solid matter. The dissolved solid matter flows back into the hydrolytic tanks; the remaining solid matter is hauled to the

sludge beds, spread out, and allowed to dry.

FILTER BEDS .

From the hydrolytic tanks we passed to the distributing house. Butterfly valves, on which electric motors automatically keep a seven-foot head, regulate the flow of the sewage from here to the percolating filter beds. The sewage is distributed over the filter beds by a system of laterals leading to nozzles spaced 15 feet apart. The filter beds are constructed of 1 1/2 to 3-inch stone. The nozzles spray the sewage evenly over the surface. In these beds the principal purification of sewage takes place. Aerobic bacteria on the surfaces of the stone act on the sewage as it trickles through the bed. The sewage collects in tile-covered drains and is conducted to the settling basin.

SETTLING BASIN

The settling basin is merely a collecting chamber 600 feet long by 300 feet wide. The purified sewage collects here after passing through the percolating filter beds. From this basin the sewage passes over a weir and drops with a twenty-foot head to a two-hundred horsepower turbine and thence to the level of the

Chesapeake Bay. The turbine operates an electric generator which furnishes electricity for lighting and for power to operate all machinery throughout the plant. Samples of the effluent were offered us to drink. The effluent was almost clear and sparkling but the very idea of it having been sewage prevented any of us from tasting it.

Throughout the whole plant everything seemed to be in first class shape, clean and healthful—conditions altogether different from what one might expect to find about a sewage disposal plant. The raw sewage, as it comes from the main sewer has an odor of putrifying organic matter caused by the septic action evolved during the flow from the city. Again the sewage in the distributing house has a strongly characteristic sulphuretted hydrogen smell. But at neither the main sewer outlet nor the distributing house does the odor cause any continued annoyance. As the former place is exposed to the air, the odor is quickly carried away; and, as all of the machinery in the distributing house is worked automatically, no one needs to go in except occasionally to observe its working.



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Editorial

THE mid-year examinations have come and gone. We are now on our last lap of the collegiate year of 1913-14. What it will bring for us individually is conjecture of course, but have any of us endeavored to analyse this uncertainty, which will surely be ours? To begin with such self-inquiry or inspection, it would surely be food for thought if we would consider and weigh three questions thoroughly in our minds: What have I done? What am I now doing? What will I do in the future while at Delaware College? It's a safe bet

that not one-fourth of the students have ever taken this attitude toward college work since they have been enrolled. The majority of us take things too easy, and contentedly, we do not enter the game imbued with that sense of seriousness and feeling of energy that eventually spells success. Life is far from a joke when we are finally removed from our family bank account. It is the thought of our self-support that necessitates a certain self-consciousness, which should be characteristic of our college work. Are our efforts in collegiate work worth at

the present following thru lives of industry which will place us on the footing with the normally educated man, give us an impetus on our life work, and a vitality that will withstand the grind of competition. Do not deceive yourselves, fellows. This is the time and place to cultivate that training which will be our foundation for a prosperous and profitable future. Are you making use of your opportunity, reader?

Our accomplishments in the past and our activities in the present are well appreciated by us individually. What the Review wants to do is to bring up the future. We all, without hesitation, declare that the future is bright, it will be good, but the vital question is not, Are we satisfied with our accomplishments of the past? It is rather, Can we improve? Can we rise higher?

In college life there are numerous and diversified paths of endeavor. It's the variety that adds the charm and makes the sacrifice worth the effort. Many fellows are not inclined to look at things in this light. Athletics, nine times out of ten, attract the man's eye and thoughts today. He naturally comes to the point where he would like to make a team and earn renown as an athlete. But then he comes to face the fact that he is physically unfit or not skillful enough to become a tackle on the football team, a quarter-miler, or a catcher. Then when this conclusion is arrived at, the normal college man languishes into idleness in his off moments, and soon reasons that because he cannot become a constellation in the athletic sky he has gone to the end

of his college string. Then he gradually loses his grip.

This is where the error lies. Thus, true athletics win a man fame, and are worth while; but on the other hand, who has not a feeling of emulation and pride in the chap that passes all of his "exams" well? In an accomplishment of this sense there is a modest fame which is of considerable value in the long run. It eventually boils down to this: if you are not a bright light in athletics, lead the way in scholarly attainments. This does not demand excessive toil and results in twofold returns, saving money and giving you an insight into something that will be of use to you in future.

Those who have no especial aptitude for theoretical work and prove to be slow in athletics, should try their hand at laboratory work. There is respect for a leader in this work as well as in the above-mentioned. If this work is uninviting to some, they may try work in debating, and arouse interest and enthusiasm for the work. The point of the argument thus follows: do not be satisfied with remaining in a stupor and letting valuable time slip away unprofitably. We are all endowed with abilities of some sort and if it isn't the place to find this ability in college life, where is it? The world has no place for idlers. Consequently it behooves us to work out our time profitably. Let each and everyone of us make up our minds to get something to do to make our college life worth while. Do not let any of us be satisfied with lying back and becoming a wall flower. Our nest will be what we make, so let each one learn to be indus-

trious and painstaking with all our work; then we can rest assured that ours will be well feathered. What's the matter with making the coming five months' work increase two-fold over the past five? You can do it, but what's your conclusion?

It is with extreme regret that we learned of the resignation of Dr. Harter as President, reference to which has been made in another column. To the students and alumni who have been under

his supervision during their time in college, the idea of a change is not welcomed. We who know him dislike him to step out. He has always been a real friend of Delaware men. It is true that we shall still have him as a teacher; but we shall nevertheless feel our loss in not being under his direction in our ordinary college affairs. We can only extend to our next president, whoever he may be, the wish that he will receive from the students the same high regard and affection which they hold for Dr. Harter.

Athletics

BASKETBALL is now on in earnest and so far the Blue and Gold quintet has made a very good showing in the three games which have been played. Captain Weimer, Cann, Thomas, Wills, Lacklen, and Doherty of last year's Varsity squad are once more out for the team. Naylor and Horsey are two fast forwards from the Freshman class, but their lack of weight handicaps them in the games. So far this year there have been no two games with the same five men playing the full period. It is, therefore, difficult to pick a real Varsity team.

The attendance at the games has been very good so far. Many more townspeople have been attending the games than in previous years. The fact that two of the games were played during examination week partly accounts for the small number of students being present.

Fellows, it is up to the student body to support the team. Remember that the team is representing your Alma

Mater. You should be proud of it whether it wins or not. Don't knock the team. Get out and root for it to win and we will have results.

There is no use trying to beat around the bush; our teams are not supported by the students, especially the commuters. Some of the Wilmington men have never seen a basketball game here at the College. It is a disgrace. Can you fellows spare just four evenings this winter to see Delaware play basketball? It will be worth while. No one can get anything out of College life from 8.42 to 4.20. Try to realize that it is your Alma Mater and something to be proud of. When you walk down the street, hold up your head and say, "I am a Delaware man and proud of it." You can't do this unless you support your teams. Let's get together.

Our first game was against the fast team of Susquehanna University. This is a new team on our schedule. They were a bunch of clean players and true

sportsmen. Superior weight told and Delaware went down to defeat 26-14.

Our second game resulted in a defeat at the hands of Drexel Institute to the tune of 10-9. Inability to shoot fouls was the direct cause of the loss of this game. Lineup:

Delaware		Drexel
Naylor	forward	Kiebler
Thomas.....	forward	Coogan (Horsey)
Weimer	center	Ingham (Potter)
Doherty.....	guard	Vanaman (Walborn)
Cann	guard	Walls

The Blue and Gold were victorious in the third game, with Temple University. The game was fast and only a spurt in the last two minutes brought Delaware the victory, 20-16. Lineup:

Delaware		Temple
Naylor	forward	Nightingale
Horsey	forward	Lemmer (Wills)
Weimer.....	center	Millington
Doherty.....	guard	Dickinson
Cann	guard	Smith (Thomas) (Lacklen)
		(Cooney)

Track work is now on. The candidates are working out on the indoor track, and as soon as the weather permits the outdoor track will be used.

There is a good chance for a lot of new material to make good at track this year. Several sprinters and field event men have graduated since our last team met Muhlenburg. It's up to students who have not been out before to fill the

gaps made by these losses, and no matter if you have never done anything before, now is your chance to get out and surprise yourself by developing into a valuable track man.

Our first meet is the University of Pennsylvania Relay Carnival on April 25th. There will be two dual meets following the relay races. Both of these meets are to be held on Joe Frazer Field, one with Drexel on May 16th, the other with Stevens on May 30th. We finished last at the U. of P. races last spring. If we don't want that to happen again, we've got to begin work right now. This applies particularly to those coming out for the first time.

If you are interested, whether you are a track man or not, look up the track captain and talk it over. Remember that those who make the relay team which finishes first or second at the U. of P. relay races, and any man who scores 10 points during track season meets will receive the varsity "D." Also, any man who breaks a Delaware record will be given a "D" and a gold medal.

Come out and do something for your Alma Mater!

The following letter has been mailed to all the High Schools in Delaware:

Delaware College will hold a Dual Intercollegiate and Interscholastic Track and Field Meet, Saturday, May 16, 1914.

Your school is most cordially invited to participate. Silver loving cups will be presented to the schools scoring the greatest number of points in their respective classes, and appropriate medals will be awarded to the individual mak-

ing first, second or third places in the various events. Two classes of events will be offered in addition to the dual meet of Philadelphia and Delaware College.

Class 1. Interscholastic: Open to Chester High School, Tome Institute, Friends School of Wilmington, Wilmington High School, Wilmington Conference Academy, West Chester High School, West Chester Normal, etc.

Class 2. Interscholastic, novice: This class is intended to give equal opportunity to students of high schools which have in the past not been able to compete with some of the larger schools having well developed teams. Novices, if they so desire, may elect to enter in any of the events in Class 1; however, they cannot have entries in the same event in both classes. Entry blanks and other literature will follow at a later date.

The following events will be contested in both classes:

One-mile relay; 100-yard dash; 220-yard dash; 440-yard dash; 880-yard dash; one mile run; 220-yard low hurdle; running broad jump; running high jump; pole vault and 12 pound shot put.

The majority of the schools will be unable to enter all the events, but it is hop-

ed that as many schools as possible will enter teams in the one mile relay races. Four men constitute a relay team, and the training for this event does not necessarily require an athletic field. Delaware College, before possessing an athletic field modernly equipped, for many years trained her relay teams on the nearby country roads.

The meet will start at 1.30 o'clock p. m., Saturday, May 16. Delaware College Cadet Corps will give exhibition drill on the morning of the meet. Following the drill the contestants, as guests of the college, are invited to take luncheon in the college gymnasium. Delaware College invites your school to take part in our Field Day that you may become better acquainted with us. Enjoy a good day's sport. See our new athletic field and also see the interesting meet between Drexel Institute and Delaware College. We want you to feel that it will be a great pleasure to have you with us.

You are invited to ask for any further information.

Yours very truly,

William J. McAvoy,
Physical Director.

Agricultural Notes

At the meeting of The Peninsula Horticultural Society held in Easton, Md., January 13-15, Prof. C. A. McCue gave an illustrated lecture on "Cover Crops for Orchards."

Dr. Manns attended the recent annual meeting of the American Association for Advancement of Science at Atlanta,

Georgia, and presented three papers prepared by him and Dr. Taubenhau.

Professor Hayward lectured on "Dairy Feeding" before the annual meeting of the New Jersey State Board of Agriculture held in Trenton, N. J., January 29-30.

The Holstein cow, Maud H 2's Lass,

a prominent member of the College herd, is now completing a milk and butter record which promises to be little less than phenomenal. During a period of ten months and six days, she has produced 18,017 pounds of milk and the equivalent of 747 pounds of churned butter. In view of the fact that her daily production is now about forty-five pounds of milk, it seems virtually assured that her record for one year will surpass that of any cow owned in Delaware.

A new sterilizer, operated by steam

from the new heating plant, has materially increased the efficiency of Dr. Reed's Bacteriological Laboratory.

Mr. Arthur H. Rounds of Iron Hill, Md., has been employed as superintendent of the College herd of registered swine.

The College Farm has just sold, for a handsome price, two pure-bred Guernsey bull calves sired by the famous bull, Beda's May King, now at the head of the College Guernsey herd.

Locals

Smith (at supper table)—“What did you say you were operated upon for?”

Heyd—“Empyema.”

Smith—“Is that anything like *Ecze-ma*?”

Bounds (in Botany “Lab”)—“Professor, shall we draw all these pictures on one sheet?”

“Doc” Vaughn (to the members of the Sociology Class)—“If you men keep out of jail until you are 35 or 40 years old, your chances are pretty good.”

“Johnny” Edgar—“Unless you are a banker.”

As a specimen of the recent innovation in orthography, the following was found in Loomis' note book: “Boil's Law.” Will some member of the engineering department please explain that law for us in the next issue?

Upon entering Room 2, the other afternoon, Prof. Hillegass was struck dumb

at seeing the following words written on the black board: “IT IS A BOY.”

Prof. Hills (to a bunch of “Aggies” in class room)—“Last week a veterinarian was called to see a sick cow. But, as she had been in poor health for some time, he was unable to resuscitate her. After her death, however, he held a post mortem over her.”

Agricola Mulhollandia—“What kind of disease was that?”

“Doc” Vaughn (in Delaware History Class)—“Mr. Ruth, just what do you have to offer?”

Ruth (trying to put up a bluff, reads the following:) “The Mason-Dixon Line is the thread of communication that is to be established between the Dormitories of Delaware College and Delaware College established for Women.”

“Doc”—“Do you think that is good material?”

Ruth—“Yep, I think that it is pretty good dope.”

Connellee's feet are so big that he has to stand sidewise to get the key in the door.

Life to some fellows is one cigarette after another.

Paynter and Scott are like "Little Eva"—they're always going to heaven.

We hear that Prof. Hayward is going to cut down some of the trees on the campus and give them to Curtis Publishing Co. in order that they may make Saturday Evening Posts out of them.

Chemistry was put in the world to keep students from going to heaven.

I wonder if you could drive a horse with the reigns (reins) of England's Kings.

Some people never seem to die. We don't want them; neither does the Devil. Maybe a little "Pepper" would come in "Handy."

Lind (to 'phone operator)—"Give me the B. & O."

Operator—"How will you have it, wrapped up, or served in courses?"

"Doc" Vaughn says that you can give people plenty of reasons, but you can't give them understanding.

"Connie" Wills is so thin that when he closes one eye, he looks like a needle.

If I had a shape like some girls, I wouldn't let the world know it by wearing a slit skirt.

I'm going up to the Post Office, stamp my feet, and see if I can ship them by parcel post.

If Brayshaw didn't have a hump on his back, he wouldn't have any shape at all.

(Dr. Penny, performing an experiment before the Chemistry Class.)

Weaver—"What's he doing, Handy?"

"Vic"—"Some slight of hand trick, but I'll catch him yet."

Samonisky is so unacquainted with Miss Etiquette that, if it rained peas, he would go out with a knife in his hand.

Hoch (in German Exam.)—"What is the opposite to visible?"

Prof. Smith—"Opaque."

Hoch—"What's the English for that?"

No wonder "Doc" Sypherd is thin. I've lost weight, myself, since I've been studying English.

First Student—"Why do so many girls go to Dockstader's?"

Second Student—"Connellee always sits in a box."

The distance from Newark to Wilmington is thirty-one cents.

If there weren't so many women in the world, college students and other men wouldn't wear out their shoes so quickly.

"Aleck" Crothers goes with a girl in Wilmington. If you happen to meet her don't hold that against her.

Marshall, '17—"What makes the night fall?"

Wilson, '17—"Newton's Law of Gravitation, I suppose."

Dr. Rowan (in Psychology Class)—"What makes a 'chicken' go across the street?"

Watts—"Because 'Doc' Doherty is on the other side."

You don't have to be a college graduate to get a job in the Federal League. Baseballs don't speak our language.

I wonder if Chaucer ever played football.

Every time it rains they have to dig this town out of the mud.

Life is one long series of "getting ups" in the morning.

You don't get a bean every time you order bean soup.

"Runt" Houston says that he doesn't like to eat a square meal because the corners hurt him.

Santa Claus left six more shovels for Kyle last Christmas.

The Latest Out. By special telegram to *The Review*: A. B. Carey has subscribed to the Needlecraft, a sheet containing samples of women's lingerie which he is now selling at the famous College Store (Den of Thieves). Mr. Carey is also making other arrangements for making bargain sales to the ladies of the New Women's College.

Jones (reading in Middlemarch)—"And I wish her the joy of her hair shirt."

"Doc" Sypherd—"Mr. Jones, just what is meant here by a hair shirt?"

Jones—"A thing that produces a tickling sensation, a tickler."

Question Bureau

(To be continued each month)

Why is a caterpillar so much like a hot roll?

Because it is a grub that makes the butter-fly.

Why do girls not make love in bug-gies?

Because horses carry tails (tales).
Do ships have eyes when they go to sea?
Are there springs in the ocean's bed?
Does "jolly tar" flow from a tree?
Can a river lose its head?
Are fishes crazy when they go in-seine?
Can an old hen sing her lay?
Can you bring relief to a window pane?
Can you mend the break of day?
What sort of vegetable is a policeman's beat?
Is a newspaper white when it is read (red)?
Is a baker broke when he kneads the dough?
Is an undertaker's business dead?
Would a wall paper store make a good hotel because of the borders (boarders) there?
Would you paint a rabbit on a bald man's head just to give him a little hare?
Would you pay a policeman with silver coin since nickles are not made for coppers?
If a grass-widow married a grass-widower would their children be grasshoppers?
Can you dig with the ace of spades?
Would you throw a rope to a drowning lemon just to give a lemonade (aid)?

Our dear friend and brother, Rus Paynter reminds us in many ways of the proud and haughty Roman Senator. As he stands forth before his fellows, tossing back his flowing hair, one hand behind him, the other where the fold in his toga should be, and his eyes flashing fire,

as he declaims on some of the evils of the present day. Also in the gymnasium does he remind us of the cruel, blood-thirsty Roman as he urges the gladiators—Freshman versus Sophomore—to knock the other gink's block off. Gore must be shed or 'tis no battle. But most of all does he remind us of the Roman when he is *sprawled* out at the table in the Boarding Club. Then does he do as the Romans to perfection. Feet at one end of the table, mouth at the other end, and an enormous gulf to be filled in between these far distant extremities. To perfect the impersonation, all Brother Paynter has to do is roll under the table and sleep it off—which Rus prefers to do in his own room. "This is the noblest Roman of them all." *Requiescat in pace.*

There is often more amusement in watching an embarrassed young lady with a gentleman escort than in paying attention to the performance. This is especially the case if the show is a little bit rough. By rough I mean that kind of acting and speaking which is just wavering on the edge of decency, as we generally consider that term—that is, remarks are made which we would not think of using in polite society. Such a performance, of course, is not in the least embarrassing to fellows, or seemingly to girls, when the parties are not mixed. But if a girl is with a fellow, then she gets highly embarrassed. She is ashamed to look at the stage, or at her escort. At the same time she is afraid to hide her eyes, lest she seem prudish. Some remarks are made which are funny, even if they are vulgar. The poor girl starts to laugh, stops herself, blushes up

to her ears, looks shyly out of the corner of her eyes at her escort. If he is laughing she becomes doubly embarrassed and looks as if she would be pleased to give him her hand, then and there—but on the point of the jaw or in his solar plexus. Not only is she embarrassed—she is provoked at the thoughtlessness of her escort in laughing at something which is distasteful to her.

A few weeks ago in one of the Wilmington theatres I sat back of just such a couple. It was really the worst performance I have ever seen in a local theatre, and I would have been very much embarrassed and dismayed if I had had a young lady with me. This girl in front of me seemed to be very much annoyed at the type of show. Yet she could not help laughing at times. Then she would cover her flushed face with her hands. During one whole act, after the first few minutes, she kept her face hidden, and for a goodly portion of other acts on the program. Judging from her actions I would be willing to bet a week's salary to the hole of a doughnut that that girl will not accept any invitations to a vaudeville show—for a few weeks, at any rate. But she certainly furnished an extra act to a few of us back of her—an act which was not on the program or charged extra for. And highly entertaining such an act always is to a crowd of fellows!

INTERNATIONAL PEACE

England's lost her grand navy,
So have France and Italy.
All the Kaiser's fine big soldiers
Bear trunks, not guns, upon their
shoulders.

Those who lived by might of war,
From shore to shore,
Now get their spoil
From the soil.
Admirals, generals, galore,
Can't wear gold lace any more;
The fighting trade's begun to fade;
Of war there's not left even the slightest shade.
Those who once sailed fighting cruisers
Now arrest the fighting boozers.
The world is pleased, for it sees, that
"International Peace."

Paynter—"There's going to be a blizzard this week, Professor."

Prof. Conover—"Yes, I understand a good many of the fellows are going to be snowed under."

Members of Delaware College faculty and local members of the Board of Trustees with their wives were entertained Thursday evening, January 22, by Dr. and Miss Harter, at their home, West Main street. In the receiving line with the host and hostess were Miss Groff, Mrs. T. R. Wolf of Philadelphia, Miss Brewer of Savannah, Ga., Miss McCutcheon of Plainsfield, N. J. Mrs. Penny and Mrs. Hayward directed the guests to the dining room where Mrs. Short and Mrs. Houghton presided, assisted by Miss Wright and Miss Kerr. The colors green, yellow, and white, were cleverly combined in flowers, candle shades, and the menu itself, making a charming general effect. A beautiful center of narcissus, daffodils, and great white calla lilies, graced the dining table, while violets and lilies of the valley scattered fragrance every-

where. About seventy-five guests were entertained.

Drs. Manns and Taubenhau have recently been elected to membership in the Botanical Society of America. As the membership of this organization is very limited the election of these men is an honor to Delaware College and especially to the Experiment Station.

The Political Science Quarterly for December, 1913, contains a somewhat extended review by Professor D. R. Fox of Columbia University, of a book published some time ago by Dr. E. V. Vaughn of Delaware College, and Drs. Gerson and Deardorff of Philadelphia, entitled "Studies in the History of English Commerce in the Tudor Period." Professor Fox in part says: "Dr. Gerson and Dr. Vaughn, writing on the history of the Muscovy Company, present the best account we have of the beginnings and early growth of that interesting pioneer of the English joint stock trading enterprises." He then gives in some detail an analysis and estimate of the three parts into which the book is divided. In conclusion he states that the work under review is "a worthy contribution to the literature of business and diplomacy" and that it will be "accepted not only because so few studies of such subjects have been undertaken."

The class in sociology, under the direction of Dr. Vaughn, closed the work of the first term with a spirited debate on the immigration problem, which problem

they had studied carefully in classroom. For the purposes of the debate the question was started as follows: Resolved, that present day immigration is a liability rather than an asset to the United States. The class composed of Juniors and Seniors, were assigned to sides, and the regular forms of debate were followed. The following men took part in the debate:

Affirmative: Beacom, Edgar, Carey, Groves.

Negative: Paynter, Watts, Wingate, Rhodes.

The series of public lectures to be given this year under the auspices of the Department of History of Delaware College should be of unusual interest to the people of the College community and to those people of the state who can attend them. These lectures, which are made possible by an annual appropriation from the Legislature, are delivered through the year by men who are recognized as authorities in their particular fields of work.

Dr. E. V. Vaughn, professor of history, announces that he has secured Professor W. W. Willoughby of Johns Hopkins University, as one of the lecturers in the History Series. Professor Willoughby is a noted authority on political science. He will lecture at the College on the subject of "Efficient Government." The date is February 26.

Mr. Henry Ridgely of Dover, has found it necessary because of press of work to postpone the date of his lecture on "Reading Delaware History Through Her Laws." Instead of coming in January he will visit the college and deliver

the lecture some time in March.

President Sparks of State College, will be the other lecturer of the series. His subject will be "George Washington," and will be delivered on Friday evening, February 13.

The regular annual meeting of the Board of Trustees was held in the college office on Tuesday, January 27. Dr. Harter, as President of the College, submitted his yearly report, in which he recommended some important changes in the administration of the college. Upon his own request he is to be relieved of his duties as President as soon as his successor can be selected. He also asked for the appointment of an assistant and the establishment of a new laboratory to facilitate the work in the chemical department. The various committees working upon the establishment of the Woman's College also submitted encouraging reports of their work.

The next lecture of the faculty series, will be a talk on "Walt Whitman" by Mr. Dutton, of the English Department, in the College Oratory, Tuesday evening, February 24, 1914.

The members of the Class of 1916 have already begun work on the next issue of the Blue Hen, the class book which usually appears every other year. The board is made up of the following men:

H. M. Foster, *Editor-in-Chief*
J. P. Jones, *Assistant Editor-in-Chief*
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Alumni Notes

ALUMNI BANQUET—Feb. 21

The annual dinner of the Alumni Association will be held at the Hotel Du Pont, February 21. The address of the evening will be delivered by Chief Justice James Pennewill. The invited guests include the Governor of Delaware, Dr. Eben Frazer, and Josiah Marvel, Esq. Judge Victor R. Woolley, '85, will serve as toastmaster. The members of the Ways and Means Committee, which has charge of the dinner, are Chas. B. Evans, '86, Joseph H. Hos-

singer, '91, Dr. W. H. Steel, '95, E. L. Smith, '96, Chas. W. Bush, '03, Richard S. Rodney, '05, Egmont Horn, '10, W. O. Sypherd, '96, chairman. It is expected that 150 Alumni will be present.

'96

Dr. W. O. Sypherd addressed a meeting of the High School Principals and Teachers of Delaware at Dover, on January 17. His subject was: "How Shall We Teach English Literature?"

'07

Paul H. Keppel, who is in the Engineering and Contracting Business in Havana, is at home for a month's vacation. Keppel reports that M. A. Robin, ex '09, is with the Cuban Central Railroad Co., Sayua la Grande, as construction engineer, and is making rapid progress.

'10

Oliver G. Hudson is with the Stone and Webster Engineering Corporation, Boston, Mass. He has just returned from Keokuk, Iowa, where he had charge of field work in connection with the building of the dam across the Mississippi.

'12

A. F. Walker has been appointed superintendent of the Pennsylvania Railroad Demonstration Farm at Bacon, Delaware. Mr. Walker will assume his duties at once.

'13

Artisan Smith, ex '13, is now located in Wilmington with the Wilmington and Philadelphia Traction Co.

William M. Schlittler has secured a position with the Department of the Interior, and is working on an irrigation project at Fort Hall, Idaho.

At the basket ball games held during January several alumni members were back. Among those present were: Morrow, '11, E. P. Jolls, '13, L. A. Rossell, '13, W. L. Beck, '13, A. F. Fader, '07, G. E. Dutton, '04, B. R. Foster, '13, Dr. W. O. Sypherd, '96, J. P. Cann, '01, E. Horn, '10.

Recent visitors at College were: H. T. Hurlock, '13, I. S. Lank, '13, O. G. Hudson, '10, W. S. Corkran, '10, E. Horn, '10, J. Barnholt, ex '11, W. H. Weggenman, '10, V. H. Jones, '09, P. H. Keppel, '07.



STUDENTS AND ALUMNI

Q YOU WOULD RESENT IT IF ANY ONE SAID YOU WERE NOT LOYAL TO OLD DELAWARE. OF COURSE YOU WOULD—AND NOT TO BLAME.

Q BUT SAY, DO YOU SUBSCRIBE FOR THE REVIEW? OWN UP NOW, ISN'T THAT AN EXPRESSION OF YOUR LOYALTY? THEN SEND IN YOUR WILSON WHEEL.

Q TO SING THE ALMA MATER, TO GIVE THE COLLEGE YELL—ALL GOOD ENOUGH IN THEIR PLACE—BUT THAT'S NOT ALL THERE IS TO LOYALTY.

Q THE REALLY GOOD SPORTS AT DELAWARE TAKE THE REVIEW. ARE YOU A GOOD SPORT? THEN COME OVER WITH THAT DOLLAR.

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no rain in October and the wheat is small and does not look like it would stand the winter well.

We finished husking yesterday. From the acre where we tried your theory about bone-meal and clover making the Potash available, we harvested 50 bushels of rather chaffy corn, and from the rest of the field, where we used bone, clover and 50 lbs. Muriate of Potash per acre, we husked out 70 bushels per acre of tip-top corn that is nearly all fit to sell on the ear for seed corn.

I figure that a ton of Muriate of Potash on 40 acres of corn will pay for a year's post graduate study for you and leave you a little spare change to chip in for athletics.

Mother and the girls are going to make a few days' visit to Aunt Sarah's

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talking about
the lady or
the tobacco?

Talking about
"Velvet" tobacco!

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Will you go inside with me? Good!



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