Democratic Watchman.

Bellefonte, Pa., October 5, 1917.

BOYS MAKE MEN.

When you see a ragged urchin
  Standing wistful in the street,
With torn hat and kneeless trousers,
  Dirty face and bare red feet,
Pass not by that child unheeding;
  Smile upon him. Mark me, when
He's grown old he'll not forget it;
  For, remember, boys make men.

Let us try to add some pleasure
  To the life of every boy;
For each child needs tender interest
  In its sorrow and its joy.
Call your boys home by its brightness;
  They avoid the household, when
It is cheerless with unkindness,
  For, remember, boys make men.

A LITTLE LEAVEN.

Robert Revere Van Courtland Whitney, despite the dignity of his name, had always been obliged to enter his aunt's house by the back door. There were good and sufficient reasons for this—as she had painstakingly explained to him; little boys' shoes which had walked in mud or dust invariably left duplicates of themselves on stairs and carpets. He wished he might explain to **her** that this was exactly why he liked to see them there, that it was even better than drawing on the tracing-slate; but somehow he never quite got up enough courage to argue with his aunt Bella. Today, for instance, he would have liked to discuss the whys of going to dancing-school; here, for a wonder, had he but known it, she would have agreed in its uselessness; but her "Your father wishes it" seemed to have to settle the matter for them both.

And, oh, how much he would have liked to have asked more about this father of his! All his questions on the absorbing subject were generally answered by a meager yes or no. He kenw there was a mysterious place called Boston where this gentleman lived, but he himself knew only this house of his aunt's in the small country town some fifty miles from the big city. Father wrote to him, and sent the usual presents at Christmas and birthdays, and once in a long, long while he came to see him. But then he only stayed a few hours, and Robert always became fearfully shy and never said very much during these visits, so his father got the impression that his son was rather a stupid little chap.

Mr. Whitney had left Robert with his wife's elder sisters after that horrible time when, the young mother dying at his birth, the distracted man had only wanted to be alone—never to see this little bundle of humanity who had been the cause of his losing the woman he loved. And, on her part, Miss Isabella Townsend never forgave **him**, and would have been glad not to see him again since he had been the means of bringing disgrace on their irreproachable family—for disgrace was what Miss Bella called the eloping of her eighteen-year-old sister with her boy lover. She had to admit, however, that the detested brother-in-law had always paid generously for his son, and she did her duty by the child as well as she knew how, but it was duty with such a big D that there was none of it left over to spell such words as dear and darling, delight and demonstrative!

Robert was not neglected, his needs were seen to conscientiously; Miss Isabella may not have liked his father, but she intended that all criticism should come from their side of the family, so his boy was being "well brought up." Those words were often on the lips of the sisters.

When one comes to think of it there was something to be said for Miss Bella, because here was an unwelcome infant, thrust upon her from an unwelcome source, and because there was no one else to do it, she, as a Christian woman, had to look after him. It was hard, for instance, that, knowing sunshine to be necessary for children, she should have to keep the shades raised and so see her beloved belongings fade before her eyes. The baby had been trying enough, for his nurses had already given more trouble than he; but they had all departed to upset other households, and now it was the boy himself who was so often and so innocently annoying.

Oh, how many times she had wanted to box his ears! But she never did—a discipline, had she guessed it, which was much better for Miss Bella than the blow would have been for Robert. Even at this early age he had that strange collecting fever which so unaccountably attacks boys; to be sure, at present it was something as harmless as railroad time-tables, but still the pile of these took up the place in his bureau drawer where his handkerchiefs ought to go. And how on earth a child of seven could know the multiplication table (when it was a stumbling-block to Miss Isabella even yet) and still not be able to remember the days on which to change his underwear, was a constant mystery and aggravation. As for his pockets—well, it is hardly fair to blame her for that, because a real mother often has cause to complain at what she finds in a little boy's pockets.

Just about the time when Robert began to realize dimly that all homes were not quite like this—that is, that there were actually boys who got their feet wet intentionally and ate between meals without being punished—something happened in his own well regulated life which upset the usual order of things.

It was at breakfast that it began; the postman unconsciously set it going in a letter he left. Aunt Bella read it to Aunt Clara (oh, hasn't Aunt Clara been mentioned before? Well that just describes her, she merely lived with her sister), and it made them both very much excited indeed. This was not to be wondered at when he found it meant a guest who would have to be put in the sacred spare room. Why, that had not been opened since he had measles long ago and his father had come on one of those rare visits.

He heard them read such sentences as, "You will remember my mother, I am sure; she so often speaks to me of your school-girl days together;" and: "As I am in Boston at present, she is most anxious that I should come out to see you. May I?"

That seemed to be the most important part, for they reread it two or three times.

"I suppose we shall have to ask her," Aunt Bella said, finally; and Clara asked, timidly, "Is her name Connett, or is she married?" People who were married had not been very welcome in that house.

"No, thank goodness, she doesn't seem to have a husband. It's just signed Olga V. Connett. Well, we've got to have her, I guess, for I visited Jane, you remember, after we left school. Dear me, I hope she's been well brought up. As I recollect that Southern household, there was a good deal in it to be improved upon."

It was not until the actual day of her arrival that Robert began to take a personal interest in this Olga Connett, and then it was with a feeling of resentment that he awaited her coming, since it meant his Sunday clothes and the putting away of the cherished time-tables, which could not litter up the place, Aunt Bella said, when company came. Of course it was rather nice to know they were going to have ice-cream for supper—and he even began to feel a little excited when the old depot cab drove in at the gate. He never had seen that before, for they were too near the station, it was thought, to indulge in any such extravagances.

He remembered afterward how still the house had seemed as they waited, no one speaking, only the old clock in the hall tick, tick, ticking—and then She stepped into the doorway! Nobody noticed the sound of the clock after that, for there was such chatter and jolly laughter that it almost made Aunt Bella smile. But not quite—for already she was aware that the bags and wraps had been piled upon the parlor table regardless of ancestral photographs, that one corner of the rug was turned up and a large bunch of moist flowers dripping on the plush lambrequin.

Having taken in her surroundings at one glance when she entered, Olga was perfectly prepared for the bedroom into which she was ushered, with its heavy set of walnut furniture with marble tops, and walls covered with left-over pictures from other parts of the house. There were the usual things labeled or embroidered Matches, Combings, and Laundry; they always made Olga long to put her stray hairs into the soiled-linen bag and the burnt matches into the comb-box; and, truth to tell, this is just what she often did, but fortunately her hostess did not know it—yet.

She was late for supper—an unheard-of offense in this house—because when she had half unpacked her bag she came across a magazine she had been reading in the train, and stopped long enough to finish the story. When she finally walked into the sitting-room Robert nearly fell off his chair, for it was the first time he had ever seen any one in evening dress.

Not that the very simple gown, a little low in the neck, could properly come under that heading, but it was pink and it was fluffy, and somehow it didn't look like anything his aunts ever wore. He fully expected to hear the visitor scolded for keeping them waiting, but evidently that young lady was used to having people wait for her, because she only gave a most profunctory apology and, unconscious of Miss Bella's frown, said cheerfully:

"Hello, Bobbie, do you sit up for dinner?"

"My name is Robert," he answered primly.

"We do not care for nicknames, though I have suffered all my life from one," his aunt explained.

"Oh, but Robert and I can never get on unless we have a nickname. I'm sure you and he won't mind if I call him something—well—sort of intimate, you know. Show me your knife, Bobkins, and I'll let you cut this string and see what's inside."

They were at table now, and yet she had dared put her bundle right down on the best cloth and was calmly picking at the knot in the cord as if it was nothing unusual. He glanced bashfully at his aunt, not knowing what to reply.

"Robert has no knife, Olga. I do not believe in boys having them; they always injure themselves or something else if they do, and Robert understands that in cutting himself it would give trouble to others."

For a moment the young girl could not believe her ears; then, taking up the precious pearl-handled company knife which was beside her plate, she snapped the string with a vicious cut and silently handed over a box of chocolates to the wide-eyed little boy.

"Say 'thank you,' Robert, and put them away until another time; you must not eat candy at night."

This seemed like rather a gloomy beginning, but next day things improved somewhat, for he and Olga had the most wonderful walk together, she insisting that he did not need rubbers; and most marvelously she had her way—without putting Aunt Bella in such a very bad humor, either.

He would have liked to ask her how she did it; he knew he could laugh and crinkle up his eyes just as she did, but he doubted that he could put his arm round his aunt and give her that funny little squeeze; but he was willing to try even this if it brought about such surprising results.

"Take your umbrellas; it looks stormy," was the last injunction, yet he was hurried off without them.

"I hate carrying umbrellas and things; don't you, Bobolink? Let's chance it, anyway."

"Why does Aunt Bella always think it's going to rain?" he asked as he took her hand, held firmly, he felt, and not by a slipping two fingers.

"Does she?" smiled Olga. "Well, perhaps she wears blue glasses."

"Only when the sun's on the snow," he said, seriously.

What a walk that was! Different from any he had ever known before; no pulling him past the store windows in the village where there were so many fascinating things to see, no insistent "hurry" when he lagged behind to watch a squirrel walk the trolley wire, and always a ready answer to the dozens of questions he loved to ask. She even stood before the torn and weather-stained circus posters and discussed their delights quite leisurely.

"Have you never been to a circus?" she asked suddenly.

"Only to a dead one." And seeing her puzzled expression, he explained that he had once been taken to a place where they had stuffed animals in glass cases—Aunt Bella had thought it would be "instructive."

"Well, we'll go some day, for fun and nothing else. I just love it myself, and if I had a real boy with me it would be great." She laughed into his upturned face. "I'm most as young as you are. Let me see, just how old are you, Bobby?"

"Seven—but a big seven I guess, 'cause I wear eight-year ready-mades" he answered, proudly. He had been told not to inquire into the interesting subject of grown people's ages, but he made a compromise with his conscience.

"What size ready-mades do you wear?" he asked.

"Why, listen to the scamp of a boy! He wants to know how old I am. Guess?"

"Forty?"

"What!"

"Aren't you?"

"Just half that—Impudence." She watched him carefully calculating.

"Well, twenty's pretty old, isn't it?"

"Yes, I suppose it seems so to seven," she said, meekly. Presently she asked: "Robert, do you know what you'd like to be when you grow up?"

There was a slight pause while he seemed to give the question serious attention. "A minister, I guess," he said, and glanced up for her approval.

Heavens! had they made him a goody-goody!

"You see, I like to talk, and ministers can; nobody ever tells them to keep still when they preach, and sometimes I get tired of being seen and not heard."

With her strong young arms she lifted him to her face and kissed him—immediately apologizing.

"Honestly, I don't think any one saw us, Bobbin, so you needn't hind. I won't do it again unless you say so."

"Maybe, sometime I'd let you—at night—in the dark when I go to bed."

"All right, old man; I'll remember. Do you mind going to bed in the dark? I did, fearfully."

"Not now, I don't, but when I was little I did."

The rain came later in the day, but Robert did not mind a rainy afternoon with this delightful playmate in the house. She had told the aunts they would make too much noise to stay down-stairs. "We're going to giggle, aren't we, Bobtail, and do all sorts of silly things, so I think my room's the best place for these two infants—" so now there they were, the box of chocolates in some mysterious way up with them too. At Olga's daring to seat herself on the smooth, freshly made-up bed, he was so afraid of reproof for her that he ventured a remonstrance of his own.

"Don't you think you'd better come over here and sit in this chair?" he asked, uneasily. "Because, you see, Aunt Bella won't like any one mussing up her clean spread."

"Oh, that's all right, Bobby. I'll fix it up beautifully afterward."

"But spreads cost twenty cents to send to the laundry. I don't want her to scold you," he ended, lamely.

She put out an impulsive hand and drew him toward her, but there was a visible tightening of her mouth, as she said, recklessly:

"What would you like to do, honey-boy, more than anything else this afternoon?"

He hesitated a moment, then, remembering that she would understand, he whispered: "Oh, I'd like awfully to go out and get my feet wet in that puddle! I never have heard my shoes make that funny suck-suck noise when their soaking. Don't you love to play in water?"

"Yes, sirree, I do, and some day I'm going to teach you to swim, and some day"—she sat up now with mischief in her face—"some day I'm going to let you put on a pair of my old boots and go out and paddle in the wet just as much as you want! Only," she added, already anxious about him, "you must promise to come right in afterward and have your feet rubbed good and dry."

"But you won't be here after tomorrow," he said, forlornly.

"You never can tell what's going to happen, Bobbin. 'Most every day something nice turns up."

"Not when you're not here," he persisted, still very much depressed at the terrible thought.

But she managed to distract him with all sorts of new games and stories, and at dinner that night he became so animated in his talk that two or three times Aunt Bella had to say, "Look out, Robert, you'll upset your glass of milk," and finally he did do it, and was sent in disgrace to his room.

Olga continued talking politely to the two ladies, but always with rather a preoccupied air, and presently she said she'd run up stairs and get her embroidery. But really she went to listen outside of Robert's room for the sound she dreaded to hear. It came to her in the pitiful suppressed sob which made her hurriedly open the door. He was all alone in the dark, and she rushed over to where he stood and put her arms around the pathetic little figure.

"Don't mind, honey! I'll stay with you if you want me."

"But you won't stay always—and it's that I mind more than what Aunt Bella did."

"Would you like to live with me all the time, little son?" the girl asked, softly.

"Oh, but just wouldn't I—and you're going away! **Please** take me with you!"

She was kneeling beside him now, looking up into his face. Suddenly she burst forth into an excited whisper.

"Bobbie dear, if I tell you a great, big, tremendous secret, do you think you can keep it for a little while—just for a few days, anyway?"

He nodded delightedly, her excitement communicating itself to him, made him tense with attention.

"Well, then, you are going to live with me. Oh, Bobby, I'm so happy! I'm going to be your mother in real earnest, for I'm going to marry—whom do you think?—your daddy! I came up here just to see how you and I would get on together—and you will love me, won't you, because I love you ever and ever so much already."

A stern voice from below interrupted them. "Olga, I must ask you to come down now. It is after half past eight, and Robert ought to be asleep."

When she appeared, empty-handed, Miss Bella asked, rather stiffly, "Where is your work?"

"My work?" Olga was too preoccupied to comprehend at once. "Oh, you mean my embroidery. I decided to write instead. May I use your desk?"

And hardly waiting for the reluctant permission, she sat down at this hallowed spot, where no one except the owner herself ever ventured. Directing an envelope, she paused and smiled, looking at the two calm, prim women sitting beside the lamp. "What fun it would be," she thought, "to throw the bomb-shell of this address into the room now," but she resisted the temptation.

The letter, without beginning or end, contained only these words: "He's a dear—and you're going to love him as much as I do."—By Maud Christian Aymar, in Harper's Monthly Magazine.

——Some people say it pays to advertise, but how about the chap who advertises for a wife? He gets what he advertised for but seldom what he wants. Oh, dissatisfied man!

Health and Happiness

"Mens sana in corpore sano"

Number 25.

THE INFLUENCE OF TEMPERATURE UPON THE GROWTH OF BACTERIA IN MILK.

Milk is a particularly favorable medium for bacterial growth for not only does it contain all the substances necessary for nutrition but they are diluted in such proportions as to render most of them available for bacterial life. And when it is richly seeded at the outset with bacteria, enormous multiplication will occur, provided it is kept at ordinary summer temperatures, for, as was said last week, the temperature factor is all-important. If milk is kept at 32 degrees F., it shows a decrease in bacteria during the first one hundred and sixty-eight hours, but higher temperatures encourage rapid growth as is shown in the following results obtained by Freudenreich and by Park.

No. of bacteria per c. c. in milk kept at different temperatures.

	77 degrees F.	95 degres F.
5 hrs. after milking	10,000	30,000
8 hrs. after milking	25,000	12,000,000
12 hrs. after milking	46,000	35,280,000
26 hrs. after milking	5,700,000	50,000,000

(Park) Initial content of milk 30,000

	Kept At:			
	39 deg. F.	43 deg F.	55 deg. F.	68 deg. F.
24 hrs.	38,000	42,000	187,000	
48 hrs.	56,000	360,000	38,000,000	
96 hrs.	4,300,000	12,200,000		
168 hrs.	38,000,000	300,000,000		4,000,000

From these tables it will be seen that the number of bacteria in a given sample of milk depends chiefly—(1) upon the degree of original contamination of the milk, (2) upon the age of the milk, and (3) upon the temperature at which it has been kept. "In other words," to quote Jordan, "the bacterial count gives valuable information both as to the cleanliness and staleness of this indispensable food." The **importance of rapidly chilling the milk as soon as possible after it is drawn, and of keeping it constantly at as low a temperature as possible,** cannot be too strongly emphasized. At this point the subject cannot be better presented, perhaps, than in an excerpt from Russell's Dairy Bacteriology:

If a can of milk is allowed to cool naturally, it will take several hours before it reaches the temperature of the surrounding air. During this time the organisms in the fore milk are continuing their rapid growth, while those forms which come from dust, and are presumably in a latent state, awake from their lethargy under the influence of these favorable surroundings. If bacteria once gain an entrance and begin to germinate, a considerably lower temperature is required to successfully check development than to hold latent organisms, like spores, in a condition where germination will not occur.

To hasten this lowering of temperature artificial cooling is a necessity. With good well water having a temperature of 48 degrees—50 degrees F., it is possible to chill milk sufficiently to keep it. Where cold water is not available, ice water should be used.

Mixed Night and Morning Milk.—Experience has often shown when old milk is mixed with new, that the fermentative changes are more rapid than would have been the case if the two milks had been kept apart. This is most frequently observed when the night milk is cooled down and mixed with the warm morning milk. This often imperfectly understood phenomenon rests upon the relation of bacterial growth to temperature. The night milk may be cooled down to 50 degrees F., but by the next morning it has considerably more bacteria than the freshly drawn sample, the temperature of which may be 90 degress F. Now, if these two milkings are mixed, the temperature of the whole mass will be raised to a point that is more favorable for the growth of all of the contained bacteria than it would be if the older milk was kept chilled.

TAINTS IN MILK.

A tainted condition in milk may result from the development of bacteria; or it may be produced by the milk being brought in contact with any odoriferous or aromatic substance, under conditions that permit of the direct absorption of such odors. This direct absorption may occur before the milk is withdrawn from the animal, or afterwards if exposed to strong odors.

Sometimes the milk of animals advanced in lactation has a more or less strongly marked odor and taste; bitter or salty at times to the taste. It is a defect that is peculiar to individual animals and is liable to recur at approximately the same period in lactation.

Direct Absorption of Taints.—The peculiar "cowy" or "animal odor" of fresh milk is an inherent peculiarity that is due to the direct absorption of volatile elements from the animal herself. This condition is much exaggerated when the animal consumes strong-flavored substances as garlic, leeks, turnips and cabbages. These taints often wholly disappear, if the milking is not done for some hours (8-12) after such foods are consumed.

This same principle applies to many green fodders as silage, green rye, rape, etc., which not infrequently, produce so strong a taint in milk as to render it useless for human use. These troubles could be entirely obviated by feeding limited quantities of such material immediately after milking as the taint is then usually eliminated before the next milking.

Absorption of odors after milking will occur readily if milk, after being drawn from the animal, is brought in contact with strong odors, as in the barn. Exposure in the cow barn where the volatile emanations from the animals themselves and their excreta taint the air will often result in the absorption of these odors by the milk to such an extent as to seriously affect the flavor. The custom of straining the milk in the barn is to be deprecated as inconsistent with proper dairy practice.

Even after milk is thoroughly cooled, it may absorb odors as seen where it is stored in a refrigerator with certain fruits, meats, fish, etc.

TREATMENT OF TAINTS.

In fresh milk it is usually possible to distinguish between taints caused by the growth of bacteria and those attributable to direct absorption. If the taint is evident at time of milking, it is in all probability due to character of feed consumed, or possibly to medicines. Much can be done to overcome taints of this nature by exercising greater care in regard to the feed of animals and especially as to the time of feeding and milking. The milk should be removed as soon as possible from the barn. But with milk already tainted, it is often possible to materially improve its condition. Thorough aeration is recommended, but most satisfactory results have been obtained when a combined process of aeration and pasteurization was resorted to.

If the intensity of the taint grows more pronounced as the milk becomes older, then it is probably due to living organisms, which require a certain period of incubation before their fermentative properties are most evident. The treatment of abnormal conditions due to bacteria will be considered in the articles following in this series but is usually one of greater cleanliness in handling the milk.

Aeration. Practical experience has long demonstrated the advantage of aerating the milk as soon after milking as possible. This is accomplished in a variety of ways. In some cases, air is forced into the milk; in others, the milk is allowed to distribute itself in a thin sheet over a broad surface and fall some distance so that it is brought intimately in contact with the air. The benefit claimed for aeration is that foul odors and gases which may be present in the milk are thus allowed to escape by bringing the finely divided milk into contact with the air. As ordinarily practised, aeration is usually combined with cooling, and it is note-worthy that the most effective aerators are those that cool simultaneously. Under these conditions, the keeping quality of the milk is increased, but where milk is simply aerated without cooling, no material benefit in keeping quality is observed. The aerator should be kept absolutely clean and the process of aeration not carried on where there is dust as otherwise bacteria will be introduced into the milk from these sources.

October 19.—"Effect of Bacteria Upon Milk."

Drafted Flier Must Quit French Army

New York, N. Y.—Under a decision by the New York district board of appeals, Herbert Dick Smith, a member of the Lafayette Escadrille, must give up his duties as an air fighter with the French army and return to this country to enter the national army. Smith registered by mail and his certification for service as a conscript was appealed by his brother. Charles E. Hughes, chairman of the board, ruled there was no provision in the selective service law under which the aviator could be exempted from service in the national army. The only opportunity he has of getting permission to remain with the escadrille, is a special ruling by Provost Marshal General Crowder.

Favor Easy Death for the Incurable.

Chicago.—The American Association of Progressive Medicine, in convention here, is on record as favoring a movement to have State Legislatures legalize the administration of an easy death to the hopelessly incurable. The decision was made by a vote of 37 to 24 on a motion to refer the proposition to a committee, with instructions to submit to the Legislature of every State the recommendation of some action favorable to the procedure.

FARM NOTES.

—College Warns Against Fruit Tree Peddlers.—Delay in ordering nursery stock always results in getting poorer quality trees than when ordering is done early.

During the next three or four weeks nurserymen will fill their fall orders and the principle followed is usually "first come, first served." Even where fruit trees are not needed until spring, fall ordering will often insure better choice than spring ordering.

One-year-old trees are better suited to all conditions than older trees. They have merely a whip head which permits the grower to shape the head to suit himself. Two-year-old trees, on the other hand, are already formed. One-year-old stock is cheaper in price.

The Pennsylvania State College cautions against ordering fruit trees from any but established and reputable nurseries. Unfortunately there are agents who travel about buying up and passing along at exorbitant prices, second-grade, stunted stock of doubtful variety.

So many people on the farms will argue warmly that to take male birds from the flock shuts off laying for the hens. To one who has made long experiments in this direction this argument hasn't one real fact to back it up. They lay better without him around, especially the young pullets. The only thing I can say for his presence in the flock is, and I notice this more in the small nervous breeds close yet in nature to the wild stock, that, if penned, his presence seems, in cases, to cut short their getting into mischief—such as feather pulling, etc.—Ida M. Shepler, Indiana.

—Exercise is as strongly essential to the production of eggs as is regular feeding, and when the weather gets cooler a straw stack handy for biddy to scratch out the chance grain from its sides is one fine help to getting that exercise. There is nothing like having a pile of straw or corn blades in the scratching shed for the hens to tear down.

When the farmer sells his hogs and cattle he fattens them before selling time. To fatten his chickens before selling time seldom enters his mind. It is just as bad for him to pok› off a lean fowl on a customer as a lean hog. One fat chicken is worth three poor ones and has just as much edible meat on it. Some farmers try to feed up the young poultry on whole corn. You cannot fatten young poultry on whole grain unless you feed until far into the winter. Grind the grain into a flour, mix with water or good milk—buttermilk or skim, and you can fill out a lean chicken in a couple of weeks.

Wheat makes hens lay and is an excellent molting ration if mixed with corn, but you cannot feed it too long just alone. Hens fed wheat continuously, develop an ugly intestinal trouble that will rapidly put them clear out of business. Better trust to all corn with some green stuff than all wheat.

Some poultry keepers consider that if a small amount of beef scrap is good, a large amount is better. To give a flock large amounts of beef scrap or even any kind of meat scrap is to court disaster in the poultry yard. A pound of meat scrap to 20 hens is enough at a meal if the meat scrap be fresh or green, as it is called. You can give this amount if it be dry scrap to 16 hens. Meat scrap fed too heavily induces diarrhoea finally. Worms of several kinds attack the intestines of heavily meat-fed fowls, and worse, and more incurable, limber neck may set in.

—Prevent Losses from Manure.—An enormous amount of plant food is wasted annually on Pennsylvania farms by the improper handling of farm manure. This is of unusual importance today, not only because of the high prices of ammonia and potash in commercial fertilizers, with which this loss must be replaced if the fertility of the soil is to be maintained, but also because the rise in prices of all farm products has doubled within recent years the monetary returns which may be expected by using manure on the land.

At normal fertilizer prices a ton of manure had a money value of $1.90 or about $24.00 per cow per year. At present prices however, a ton of manure has a commercial value of about $5.00. About 44 per cent. of this is in the ammonia which the manure contains, 52 per cent. in the potash and the remaining 4 per cent. in the phosphoric acid.

The enormous loss which occurs will be better understood from the fact that three-fourths of the total ammonia and four-fifths of the total potash are found in the liquid part of the manure. A small amount of loss is unavoidable on any farm but the system of handling of manure should aim to avoid draining of any part of the liquid manure, fermentation of manure before it is put on the field, and leaching by exposure to the rains. The liquid manure can best be preserved by the use of plenty of straw, chaff or any good absorbent material. The fermentation and leaching can be best prevented by hauling direct from the stable to the field whenever growing crops permit. Loss by leaching on frozen ground should not deter one from hauling manure on sod where corn is to be planted next spring, if the other alternative is leaving it in an open barnyard over winter. Some loss will occur where manure is spread on top of snow or frozen ground on sloping land, but this is less than the loss which would occur if the same manure were allowed to remain in an open barnyard until spring.

However, if one has a covered manure shed or manure pit he has gone a long way toward the solving of the manure conservation problem. The main essentials in this case are to have plenty of absorbing material and keep it well packed. Here the manure can be kept in good condition, it can be drawn to the fields at any time and at the same time the loss from leaching and draining will be prevented.

It is merely putting the manure on the same basis as the fertilizers we buy. If we will not leave our fertilizers out in the rain and weathering why should we leave our manure?—R. H. Olmstead, Extension Representative.