America's Greatest Medicine

The following is a characteristic Hood's Sarsaparilla testimonial. Facts like these have made Hood's Sarsaparilla America's Greatest Medicine and entered it to thousands of homes scattered all over this broad land.

"We like to tell what Hood's Sarsaparilla has done for us. Our four children had diphtheria. From the very first our little boy Ralph, then seven years old, was very sick and for several days it seemed as if he would never be any better. After a while he began to improve and in a few weeks was able to get out, although weak and miserable. Then, gradually

All Strength in His Limbs

gave out. The physicians told us it was paralysis, which sometimes follows an attack of diphtheria. We did everything for him, but he grew worse until he was in a pitiful condition. He suffered terribly at night and complained continually of his head, and in what little sleep he was able to get, moaned unceasingly. He lost all control of the muscles of his body and limbs. He had no appetite and complained of feeling sick at his stomach all the time. After we had tried many different remedies and had about given up all hope we commenced giving him Hood's Sarsaparilla. In a short time he ceased to complain, his appetite improved and at the end of three months he was able to attend school a part of the time. Now he is well and quite a strong and rugged boy. You are at liberty to use this testimonial if you desire, as we feel we cannot say too much in praise of Hood's Sarsaparilla as a blood purifier and building up medicine." Mrs. R. E. Anderson, Cumberland, Maine.

Economy is also a characteristic of Hood's Sarsaparilla. Every bottle contains 100 Doses, and hence there is a solid fact concisely stated in the familiar line, 100 Doses One Dollar.

Hood's Sarsaparilla

Is America's Greatest Medicine because it accomplishes wonderful cures when all other medicines fail. Sold by all druggists. $1, six for $5. Prepared only by C. I. Hood & Co., Apothecaries, Lowell, Mass.

Occupation is the scythe of time.

Colorado Gold Field.

Colorado is the banner gold-producing state in the Union. Production in 1897 over $20,000,000. This year promises to exceed $30,000,000. New strikes are being made every day. Nothing like it since the days of '49. Would you know all about these things? Then send twenty-five cents for a six months' trial subscription to the "MINING WORLD," an eight-page illustrated weekly paper. Regular subscription, $1.00 a year. The most interesting newspaper in the world. Address "World," P. O. Box 1611, Denver, Colorado.

Crescent Hotel, Eureka Springs, Ark.

Opens March 1st. In heart of Ozark Mountains, climate mild and bracing, scenery wild and beautiful. Unequaled medicinal waters. Excursion rates, through sleepers, via Frisco Line. Address, Manager Crescent, Eureka Springs, or Geo. T. Nicholson, G. P. A., Frisco Line, St. Louis, Mo.

Guy is French, the Leader.

MICROBES IN THE BOWELS.

Did you know that millions of microbes, bacteria, ptomaines, invisible to the naked eye, breed and feed in the bowels, causing all kinds of intestinal troubles?

Cascarets

CANDY CATHARTIC

are the only antiseptic laxative that kill microbes and prevent their propagation. Cascarets therefore prevent as well as

Cure Constipation.

A booklet and sample free for the asking, or you can buy a box for 10c, 25c, 50c, at your drug store. Satisfaction guaranteed, or Sterling Remedy Co., Chicago, Montreal, New York.

NO-TO-BAC Sold and guaranteed to cure To-bacco Habit by all druggists.

Before a man can tell a lie he will make some kind of an excuse to himself for doing it.

Life has no joy that is not based on some kind of hope.

NO KLONDYKE FOR ME!

Thus says E. Walters, Le Raysville, Pa., who grew, (sworn to) 252 bushels Salzer's corn per acre. That means 25,200 bushels on 100 acres at 20c a bushel, equals $7,560. That is better than a prospective gold mine. Salzer pays $400 in gold for best name for his 17-inch corn and oats prodigy. You can win. Seed potatoes only $1.50 a barrel.

Send This Notice and 10 Cts. in Stamps to John A. Salzer Seed Co., La Crosse, Wis., and get free their seed catalogue and 11 new farm seed samples, including above corn and oats, surely worth $10, to get a start. w.n.f.

The man who has God to plan for him always does a good day's work.

Mother Grdy's Sweet Powders for Children Successfully used by Mother Grdy, nurse in the Children's Home in New York. Cure Feverishness, Bad Stomach, Teething Disorders, move and regulate the Bowels, and Destroy Worms. Over 10,000 testimonials. They never fail. At all druggists, 25c. Sample free. Address, Allen S. Olmsted, LeRoy, N. Y.

The man who is trying to make a fortune has no mercy on himself.

Lane's Family Medicine.

Moves the bowels each day. In order to be healthy this is necessary. Acts gently on the liver and kidneys. Cures sick headache. Price 25 and 50c.

The devil always hates a man who makes him look at himself.

Builds up the system; puts pure, rich blood in the veins; makes men and women strong and healthy.—Burdock Blood Bitters. At any drug store.

Trials never make us weak. They only show us that we are weak.

To Cure Constipation Forever,

Take Cascarets Candy Cathartic. 10c or 25c. If C. C. C. fail to cure, druggists refund money.

It helps the devil to make Sunday a dismal day for the children.

FOR 30 DAYS MORE YOU CAN TRY IT FOR 25 CENTS.

Cured of Rheumatism.

5 DROPS

CANNOT FIND WORDS ENOUGH TO PRAISE YOUR

WONDERFUL REMEDY "5 DROPS."

[Trade Mark.]

Swanson Rheumatic Cure Co., Chicago, Gentlemen:—I thought that I would write you a statement and tell you how I have got along since I have used your "5 DROPS." I must say that I am entirely well one and the dollar bottle that the 10 dollars' worth of medicine I have used of other manufacturers. I tried all kinds of medicine I saw advertised for Rheumatism and never got relief until I saw the directions. In my awful suffering till I got a sample bottle of your "5 DROPS," and after taking the same for a few days I began to have less of those severe pains racking through my body, and after using the sample bottle and used up I could begin to rest some every night; after I had used about half the dollar bottle then all my pains left me. Oh! what a comfort it was when I could get a night's rest without any more suffering. I am so thankful to you and your "5 DROPS" that I cannot find words enough in praise of your wonderful remedy for the cure of Rheumatism, and I can safely recommend it to all suffering humanity, and say that they cannot purchase any better medicine than "5 DROPS" for all their ills. Thanking you, gentlemen, for all your kindness, I remain, forever, your friend, JOHN A. DREWIENKUS, Sand Lake, Wis., Feb. 16, 1898.

SUFFERED THE TORTURES OF THE DAMNED.

President Swanson Rheumatic Cure Co., Chicago. My Dear Sir:—After suffering the tortures of the damned for a long time from an attack of Rheumatism, I wish to say that your remedy "5 DROPS" has cured me of all my troubles, which were all caused by one complaint—Rheumatism. I had Heart Trouble, Piles, Bladder Trouble and Constipation. I would not take $100 and do without the remedies even if it only cured the Catarrh for me, which it has done. Therefore, I willingly take the agency for the sale of your medicines, for they are a boon to mankind. Yours truly, J. W. DENNIS, 130 Normal Av., Buffalo, N. Y., Feb. 8, 1898.

"5 DROPS" cures **Rheumatism, Sciatica, Neuralgia, Dyspepsia, Backache, Asthma, Hay Fever, Catarrh, Sleeplessness, Nervousness, Hysteria and Headache, Kidney Trouble, Toothache, Heart Weakness, Group, Swelling, La Grippe, Malaria, Creeping Numbness,** and all kindred diseases. "5 DROPS" cures when all others fail. Send for a trial, we will send a sample bottle, prepaid by mail, for 25 cents. A sample bottle will convince you. Also, large bottles (300 doses) $1.00, 3 bottles for $2.50. Not sold by druggists, only by us and our agents. Agents wanted in new territory. Write us to-day.

SWANSON RHEUMATIC CURE CO., 167-169 Dearborn St., CHICAGO, ILL.

The Klondike?

If you are interested and wish to post yourself about the Gold Fields of the Yukon Valley, when to go and how to get there, write for a Descriptive Folder and Map of Alaska. It will be sent free upon application to T. A. GRADY, Excursion Manager C. B. & Q. R. R., 211 Clark Street, Chicago.

FARMING LANDS

In Central Michigan.

Parties wishing to start a farm will do well to write us. We have 10,000 acres of choice improved lands at $5 to $6 per acre, lying close to railroad. Soils clay loam, with plenty of timber. For further information, address

R. HINTE-MEISTER, Saginaw (E. S.), Mich.

CLOVER SEED

Largest growers of Grass and Clover Seeds in America. 5000 acres. Our Grass Mixtures last a lifetime. Descriptive catalog free. Will give a rousing prize in July. Prices dirt cheap. Mammoth catalogue and 10c. sample of seed and Grains, free for the postage and this notice. Catalogue 5c. JOHN A. SALZER SEED CO., La Crosse, Wis.

Ladies Wanted

TO TRAVEL for old established house, permanent position, $40 per month and all expenses. P. W. ZIEGLER & CO., 328 Dearborn Street, Chicago.

When Answering Advertisements Kindly Mention This Paper.

Beware the March Wind!

Escape the rigors of the winds this month by going South over the Louisville & Nashville Railroad. This line has a perfect through-car service from cities of the North to all Winter Resorts in Georgia, Florida, along the Gulf Coast, in Texas, Mexico and California. The Florida Chautauqua now in session at Punta Gorda Springs; six weeks with the best lecturers and entertainers, in a climate which is simply perfect. Very low rates for round trip tickets, on sale daily.

Homeseekers' Excursions on the first and third Tuesday. Tickets at about half rates.

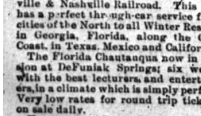
For particulars, write to C. P. Atmore, G. P. A., Louisville, Ky., or Jackson Smith, D.P.A., Cincinnati, O.

THE RECORDS SHOW CURES OF

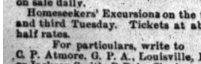
Rheumatism

BY THE USE OF ST. JACOBS OIL OF CHRONIC CRIPPLES AND OF BED-RIDDEN INFLAMMATORY CASES. THERE'S NO DENYING, IT CURES.

WE HAVE NO AGENTS



but have sold direct to the consumer for 35 years at retail prices, saving him the dealer's profits. Ship anywhere for examination. Everything warranted. 114 styles of Vehicles, 65 styles of Harness. Top Buggies, $36 to $70. Surreys, $50 to $125. Phaetons, Traps, Wagons, Spring Road and Mail Wagons. Send for large, free illustrated catalogue of all our styles.



No. 12. Surrey Harness. Price, $16.00. A good one at the price. Other Harness, $5 to $100.

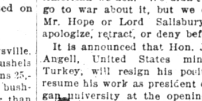
No. 638 Surrey. Price, with curtains, lamps, sun-shade, apron and fenders, $65. As good as sells for $90.

ELKHART CARRIAGE AND HARNESS MFG. CO. W. H. PRATT, Gen'l, ELKHART, IND.

Mr. Tony Hope denies he ever said anything mean about America and American women. We didn't mean to go to war about it, but we did wish Mr. Hope or Lord Salisbury would apologize, retract, or deny before long.

It is announced that Hon. James B. Angell, United States minister to Turkey, will resign his position and resume his work as president of Michigan university at the opening of the school year next fall. The query naturally arises: "If it is so soon done for, why was it begun for?"

BEETS AS LARGE AS YOUR ARM.



The editor of the "Brown City, Michigan, Banner," recently paid a visit to Western Canada, and speaking of a garden that he saw in the Edmonton District, says:

"On August 23rd we had the pleasure of visiting the model seven-acre garden at Edmonton, owned and operated by one Donald Ross, a typical Scotchman, and as whole-souled, good-natured old gentlemen as you often meet. He gave the Yankees each a hearty handshake as we were introduced in succession by the Canadian Government Agent, who was our guide and pilot while at Edmonton, and to whom we are indebted for many courtesies conferred. Mr. Ross informed us that he cleared from $800 to $1,000 annually from the sale of roots, vegetables, flowers and plants. We here state that we have never saw such a growth of vegetables at that season of the year. He said that he raised 750 bushels of onions to the acre. Beets were growing as large as your arm, turnips the size of your head, and cabbages as large as a patent pail. Following are prices that Mr. Ross gave us as receiving for his produce: Beets, 50 cents a bushel; carrots, 40 cents; onions, $1.25; turnips, $5 per ton; cabbage, 4 cents each; green corn, 25 cents per dozen; tomatoes, $1.50 per bushel; potatoes, 25 to 30 cents; cauliflower, $1.00 per dozen; cucumbers, 15 cents per dozen; strawberries, 25 cents per box; squash, 4 cents per lb., and other produce in proportion. He kept a hot-house 12x150 feet, heated by a furnace by means of flues. One man beside himself attended this garden, except at time of gathering the crop."

Agents of the Canadian Government are now located at different points in the United States, and using their efforts towards securing settlers on the fertile lands of We tern Canada, to which the gold fields are tributary.

The man who has a business for which he cannot pray has no business to say very much in church.

Ask for Allen's Foot Ease.

A powder to shake into your shoes. It cures Corns and Bunions, Chilblains, Swollen, Nervous, Damp, Sweating, Smarting and Callous fret. At all Druggists and Shoe Stores, 25c. Sample FREE. Address Allen S. Olmsted, LeRoy, N. Y.

The crookedest a man walks himself, the more he insists upon it that others shall go straight.

Coughing Leads to Consumption.

Kemp's Balsam will stop the cough at once. Don't waste precious time, but get a sample bottle free. Sold in 25 and 50 cent bottles. Go at once; delays are dangerous.

Recollection is the only paradise from which we cannot be turned out.

No matter how long you have had the cough; if it hasn't already developed into consumption Dr. Wood's Norway Pine Syrup will cure it.

The man who borrows trouble always has to pay big interest.

"I suffered for months from sore throat. Ectectric Oil cured me in twenty-four hours." M. S. Gist, Hawesville, Ky.

It is not always the biggest lion that roars the most.

Smoke Sledge Cigarettes, 20 for 5 cts.

They that will not be counseled cannot be helped.

THE WISH.

BY M. N.

ATTIE EVERETT was one of the prettiest girls in the city. She knew she was pretty when she looked in the glass—she saw the reflection of her rose-bud beauty in the admiring faces of chance passers. And yet, withal, Mattie Everett was not contented. She wanted to be rich. She yearned for a peep into "fashionable society." She was tired of the commonplace existence which she led every day, and longed for an adventure of some sort—a streak of romance to dapple her life!

For Mattie was only a dressmaker's apprentice, learning the trade under the auspices of Madame Genevieve, so matters stood, when Miss Bellefont's wedding order came in.

"Where's that little blue-eyed girl you sent to my house to alter my white cashmere morning robe?" said Miss Bellefont to Madame Genevieve. "Let her come again. She has a capital idea of trimming, and her fit is excellent."

Augusta Bellefont was not unlike Mattie herself—a plump, fresh complexioned girl, with blue eyes and pale yellow hair—and after she was gone, Mattie heard the full particulars of the case—how Miss Bellefont was to be married the next month to Major Carlyle, who had more money than he knew what to do with.

"She's a lovely girl, I'm sure," said Miss Garrett, the forewoman, as she cut off yard upon yard of bias white satin for the trimming. "And for all that they say there's a young fellow without a penny in all the world to bless himself with, that she loves to distraction."

"Oh, how delightfully romantic," cried Mattie, with sparkling eyes; and she worked away, thinking of Miss Bellefont and her rich lovers.

"One has her head," she mused, "the other will have her hand. Dear, dear, what a world this is!"

Two or three days afterward, Mattie Everett took a big paper box of half completed dress bodices to the pretty little brown stone house on Creusa Park, where Miss Bellefont lived. The servant showed her into the library, where the beauty sat, picturesquely posed in a sleepy hollow chair, with her satin slippered feet on an embroidered footstool. And leaning against the opposite window stood a tall, handsome man, whom Mattie recognized at once for Major Carlyle.

"Hallo!" cried he, in his off-hand way, "is that the milliner's little girl? Pretty as a daisy, isn't she?"

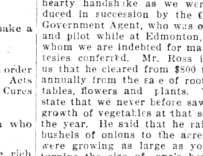
"I told you she was pretty," said Miss Bellefont, and Mattie smiled and blushed and dimpled, and scarcely knew which way to look.

"Major, I shall have to leave you for a few minutes. I dare say you can amuse yourself very well with the books and magazines. Little fine, come with me."

And then Mattie was ushered into a satin hung boudoir, of whose splendors she had never before dreamed.

"Oh, Miss Bellefont," she said, "I should think you would be so happy!"

"Happy" said Miss Bellefont, carelessly. "Which of us is really happy



HERE IS A BRIDE.

in this world? Come, let us try on the emerald green satin, and then we shall be through."

Day after day Mattie Everett came until the wedding drew near. Sometimes she saw Major Carlyle, sometimes she did not. But the oftener she came, the oftener one fixed fact became evolved from her inner consciousness—that Augusta Bellefont was, or ought to be, the happiest girl in the world.

Yet there was an absent look in Augusta's great, blue eyes, a troubled expression of the mouth that forbade the inference of perfect bliss.

"I wonder what it is that is wanting in her life?" said Mattie to herself. "Oh, if only I was in her place!"

Lights and blossoms and the shimmer of silk and satin ushered in Miss Bellefont's wedding evening; and Mattie was there dimpled, smiling and eager to help.

The bridesmaids were ready—all was ready but the bride. Augusta Bellefont had been strangely capricious and full of vagaries all day, sometimes laughing, sometimes almost sad.

"Ready?" she cried, glancing at the little malachite clock on the mantle, as the last summons came. "Surely it is not time yet. I won't dress till I am obliged. See here, little one," to Mattie, "I've an idea of seeing what I am like in this fine bridal garb of mine. You are about my height and build. You shall put on the wedding dress and veil, the white satin slippers and the wreath."

"I, Miss Augusta?"

"You. Why not? Quick! Off with that sober brown gingham, that makes such an insignificant brown sparrow of you!"

And, half laughing, half reluctant, Mattie Everett obeyed, not altogether averse to decking herself, even though it was in jest, with the brilliant robes and resplendent pearls of the heiress.

The reflection in the mirror brought the rosy carmine to her cheeks. Involuntarily she dropped her eyes.

"You are charming, ma petite," cried Miss Bellefont. "But stay—the bouquet from the other room. Wait half a second and I will bring it."

"Oh, Miss Bellefont, let me go!"

"No; I'll cut it in a minute."

And away she flitted.

One minute went by, two, three. four and five, and still Miss Bellefont did not come back. Mattie began to grow uneasy, and ventured to peep into the room beyond. No one was there.

The girl's heart gave a great jump—at the same moment the bevy of bridesmaids fluttered into the room.

"Come, Augusta, are you ready? The groom is waiting—the clergyman's come, and——. Why, Miss Everett!"

Mattie grew scarlet.

"She made me put it on!" she faltered, conscious of the awkwardness of her position.

"And where is she?" demanded indignantly Mrs. Bellefont.

"Gone for the bouquet."

They made immediate search for her but, as the reader will probably conjecture, Miss Augusta was far away, and only a note, with Clara Morford, the second bridesmaid, found slipped into the window casing, gave an idea of her whereabouts.

"Good-by," it said debonnairly. "I love Harry Fisk and have gone to marry him. A. B."

And in the midst of the melee Major Carlyle's tall head was seen, towering over the rest like Saul above his fellows.

"Gone, has she?" said he, with a composure which was quite wonderful, under the circumstances. "And I am left to wear the mitten. But who is this little ghost in the wedding robes?"

Mattie Everett lifted her pleading eyes to his.

"I didn't mean to do wrong," she said. "Oh, believe me, sir, I knew nothing of all this."

Major Carlyle looked gravely at her.

"Here is a bride," he said, "and here is the wedding feast, the clergyman and the guests—and, last of all, the groom! So I think it would be a pity to lose the wedding. If Miss Bellefont does not care for me, that is no sign that others may not. Come here, little Mattie Everett—will you be the bride?"

Mattie looked in his face a minute and then she said:

"Yes."

It was a strange wedding, but it was a wedding, after all.

And Mattie is happier now than she ever dreamed it possible to be.

She has gained her wish—she is a rich and fashionable lady now, and orders all her dresses from Madame Genevieve.

Mr. and Mrs. Fisk are living in Paris, happy and impecunious, and Major Carlyle is just as devoted to his pretty young wife as if he had never had any other love.

MONEY FOR CHARITY.

Interesting Table Prepared by Rev. C. T. Ward of New York.

The Rev. C. T. Ward of the Sheltering Arms, New York, says the New York Times, has prepared comparative tables showing the amount of money left for charitable or benevolent purposes by testators throughout the United States during the last three years. He finds that these bequests for 1897 are $1,000,000 in excess of those for 1896. In 1895 the bequests amounted to $40,405,509, in 1896 to $13,112,203, and in 1897 to $14,247,800. Of the more than $14,000,000 bequeathed last year $5,204,600 was designated for charitable purposes, $2,878,000 for missionary purposes, and $5,292,200 for educational purposes. The following table shows the amount to be devoted to church and missionary purposes, according to religious denomination:

Episcopal	$795,000	$727,200	$1,068,000
Congregational	247,000	248,500	481,800
Baptist	242,000	230,000	375,000
Presbyterian	83,200	183,400	265,100
Roman Catholic	50,000	200,000	210,000
Methodist	12,000	12,200	87,100
Reformed	20,000	67,500	57,000
Lutheran	15,000	12,000	57,000
Unitarian	59,000	63,500	17,500
New Jerusalem	14,000	20,000	13,500
Universalist	4,000	5,000	12,000
Christian	3,000	6,500	5,500
Friends	2,500	4,000	2,000
Hebrew	2,000	4,000	2,000

Clever Siamese Girls.

The dancing girls of Siam are remarkable for the grace and agility of their movements. The cup dance is the prettiest and most poetic of all. A row of young girls, with a tier of cups on their heads, take their places in the middle of the great hall. A burst of joyous music follows. On hearing this they simultaneously, with military precision, kneel down, fold their hands, and bow their heads until the cups on their heads almost touch the polished marble floor, keeping the cups steadily on their heads by some marvelous jerk of the neck. Then, suddenly springing to their feet, they describe a succession of rapid and intricate circles keeping time to the music with every graceful turn of feet. Next the music swells into rapturous tumult. The dancers raise their delicate feet, curve their arms and fingers into almost impossible flexures, sway to and fro like wishes of willow, agitate all the muscles of the body like the flutter of leaves in the soft evening breeze, but still keep the cups on their heads.

The dancing girls of Bangkok are always exercising in the royal gymnasium. Their ages vary from 5 to 20 years. The curious and subtle feat of picking up a bit of straw with the eyelids is learned early. The girls prefer each of them, who are made to practice it in order to render them flexible in every part of the body. There are long rows of benches, one a little higher than the other. On the lower is a row of little girls, and on the upper bench are laid the pellets bits of straw, which, with wonderful dexterity, they secure between the corners of their eyelids.—London Society.

Value of Woollen Mills' Waste.

The waste liquids from woollen mills threatened, like Tennyson's "brook," to "run on forever," till science came to the rescue. The recovered product called "magria" is caught in canvas bags and subjected to hydraulic pressure. It yields an oil, which, when distilled, is a combination of cloth oil (used in wool and jute spinning and in soap-making) and stearin, from which candles are made. There is also a black refuse, valuable as a fertiliser; a hard pitch, unequalled as a lubricator in iron rolling mills, and a light spirit oil, used to dissolve rubber.

Yes.

Amy (slyly)—So, in compassion, I—I kissed him. Mamie—For pity's sake!

It is said that courtship carries more passengers than all the other ships.

DAIRY AND POULTRY.

INTERESTING CHAPTERS FOR OUR RURAL READERS.

How Successful Farmers Operate This Department of the Farm—A Few Hints as to the Care of Live Stock and Poultry.

Wisconsin Dairy School Notes.

Ten weeks of the three months' term of the Wisconsin Dairy School have now passed, and students as well as instructors are becoming so well acquainted and thoroughly interested in their work that they are loth to part. The present class of 115 students, most of them from Wisconsin, but many from other states and Canada, is the largest attendance in the history of this school. The dairy school building was designed and equipped for the accommodation of 100 students, at an expense of about $40,000. Past experience has shown that for various reasons some few students are always obliged to leave before they have completed the course, and in anticipation of this 115 were allowed to enter. We were obliged to ask about twenty more men who applied for admission to wait and come next year. Some have already registered for next winter's term, and any one wishing to enter the school is advised to apply early for admission before our accommodations are filled. Creamery and cheese factory operators are about equally represented in numbers in the present class.

Scarcely a year passes without the introduction of some new ideas in butter and cheese making. This year, in addition to the usual instruction given in practical butter making in the creamery cheese making in the cheese department, milk testing in the laboratory, and milk and cream pasteurization in the pasteurizing room, the Wisconsin curd test for detecting milk injurious to the quality of full cream cheese, has been explained and used constantly by the students. Pasteurizing milk for butter making is also a new feature of the instruction this winter. During the past summer we made considerable butter from cream which was pasteurized after separation, and then ripened with a commercial starter. This butter was packed in the Australian boxes as well as the common sixty pound tubs, kept in cold storage until winter, and has been inspected by the students now at the school. A complete test of pasteurizing the milk and skimming it while hot, as well as instruction in ripening the cream from such milk and making the butter from it, has been added to the equipment of the school this winter. Mr. H. E. Schuneckert of Minnesota has been with us a few days and given the students the benefit of his experience in this line of work.

Although these continuous pasteurizing machines, which will heat from 5,000 to 10,000 pounds of milk per hour to the pasteurizing temperature of 155 degrees F., are not primarily intended for pasteurizing milk or cream to be sold directly to the consumer in pint and quart bottles, a practical test was made of the keeping quality of the cream and skim milk that came from the separator at this high temperature. Pint samples of both the hot cream and hot skim milk were taken directly from the separator and cooled in the sterilized glass milk jars, which are commonly used for retailing milk to the consumer. These samples were cooled at once to about 50 degrees F., and then were covered with paper caps and left in a room at a temperature of about 65 degrees F. Six trials were made in this way, by taking samples of the hot skim milk and hot cream directly from the separator on six different days. It was found that these pint samples, kept in sterilized bottles, remained perfectly sweet in every case for four days. Some were sweet after five days, but most of them had a slightly sour smell and about 0.3 per cent acid on the fifth day.

An experiment on mottles in butter was made by adding some of the ripened cream from one large vat to each of three churns. The two side box churns and one a combined churn and worker. The granular butter in one box churn was washed with water having a temperature of 40 degrees F., and in the two other churns the temperature of the wash water was 60 degrees F. After standing in this wash water about ten minutes a part of the granular butter from each of the two box churns was taken out, worked without salt and a 20 pound tub filled with butter from each churn. The remaining granular butter was salted, worked and a tub filled with the salted butter from each churn. The next morning these five tubs of butter were examined. It was plainly noticeable that the unsalted butter from the 40 degrees F., and 60 degrees F. wash water was of a perfectly uniform, even color, with no suggestion of mottles or wavy color, but their color was of a considerably lighter shade of yellow than that of the salted butter. All the tubs of salted butter were slightly mottled and uneven in color, but no difference in the amount of mottles could be detected between that from granular butter washed with water of 40 degrees F., and that in which the temperature of the wash water was 60 degrees F. The mottles were caused by the salt alone.

E. H. FARRINGTON.

Madison, Wis.

Poultry Range.

Too little attention is paid to the poultry range, which we often call a poultry yard. It is the custom of farmers to think that the yard is a thing of little moment. On farms where the poultry have the run of the whole place this article does not apply. But there are many farms and perhaps should be more, where the poultry are kept shut up through a good part of the season. In such a case it will pay to give a range so large that the fowls will not be able to eat all the grass that grows on it. There is no economy in restricting the range and feeding grain. Grass is one of the cheapest foods that can be fed.

Just how large the range should be will depend on many things. One of these is the richness of the soil and the luxuriance of the growth of grass on it. We have seen new lands that had just been redeemed from a scrub oak forest, where the soil was so rich that a small flock of fowls would in a few weeks completely denude of grass a large yard. But if the land has been cultivated and has a good blue grass sod on it, and is in thriving condition, it is safe to say that the area will sustain in fair condition three times as many fowls as the yard spoken of, as being reclaimed from a scrub oak forest and left with nothing but the original noncropping grass on it.

Suppose you give ten acres of land to fifty fowls. Will it not pay? We think it will. In the first place the returns from it will be without cost to yourself. There is no plowing, no sowing, no cultivating, no reaping and threshing. Almost all the returns will be profits. The grass that grew on it will have been turned into meat and eggs. The hens will keep healthy, and the saving to the life of the flock will be quite an item. Then, too, most farms are overstocked with fencing of an acre of ground for such a purpose is not a great matter. In many cases it would remain partly vacant anyway.

As to fencing the yard, this need not be a great question in this age of cheap wire. The ten acres will be a lot will it cost to fence it per square rod. Thus, if a lot be two rods long and two rode wide it will take eight rods of fencing to go around it. But if the lot be four rods long and four rods wide it will take but 16 rods to fence it. If it be eight rods long and eight rods long it will take only 32 rods to fence it. On this presumption the first lot will be 4 rods in area, the second 16 in area and the third 64 rods in area. Four foot woven wire fencing may be purchased at 40 cents per running rod. On this basis the first lot will cost for fencing each square rod, 10 cents, for each rod will require two linear rods of fencing. On the lot that is four rods square the cost for fencing each square rod will be 40 cents as each square rod is fenced by one linear rod. For the third lot the cost will be only 20 cents for each square rod.

So we might extend the figures. If the lot were 16 rods square the cost would be 80 cents per rod. If it were 32 rods square the cost would be five cents per rod square. If the lot were 64 rods square the cost would be 2½ cents per rod. A lot 128 rods square would cost 1¼ cents per square rod. Finally if the lot were 256 rods square the cost would be only ⅝ of a cent for every square rod of land. This shows the economy of great operations. The big lot is the cheapest everything considered, and this is especially true in the fencing. Of course we do not suggest that anyone build a ten yard 256 rod square lot for pasturing the fowls given to impress the truth of a great principle that we cannot afford to ignore.

This is one of the great reasons why it would be desirable to keep fowls in large flocks were it not that they are more liable to the spread of diseases of a contagious nature. A large range is always desirable, but it is difficult to have a large range without having a large flock of fowls.

In some yards the large range furnishes the fowls with a goodly supply of fresh meat in the form of grasshoppers. It is astonishing what a large number of these insects inhabit a single acre. If the acre patch be exhausted by the industry of the hens a few hours suffice to replenish it. Not only grasshoppers but hundreds of varieties of bugs and worms infest and journey through this field, falling a swift prey to the feathered sentinels. With the green grass and fresh meat the fowls are kept healthy and happy and continue to manifest their content by a voluminous product of eggs.

Australian Dairy Interests.

Trumbull White, the newspaper correspondent now traveling in Australia, writes as follows concerning the dairy interests of that country: Dairy farming is advancing very rapidly in New South Wales, as well as in some other of the colonies. It no longer is dependent to farming, but has become a specialty in the coast districts. Most of the native grasses are suitable for dairy cattle, as they have milk-producing as well as fattening qualities. In some places a little winter fodder has to be fed, but it is rough on the cattle in the field instead of in the stable. Ensilage has not been introduced very largely, but is now growing in favor. The latest figures show a few more than 400,000 dairy cows in New South Wales, yielding last year of the season 90,000 gallons of milk, of which three-fourths were used in making butter and cheese. The product of butter was nearly 26,000,000 pounds and of cheese a little more than 4,000,000 pounds. The surplus of butter over local requirements amounts to about 75 per cent of the whole output in the summer months, and the English market absorbs nearly all of this. It is only during the last five years that Australian butter has seriously influenced the London market, for although for some time small consignments had been sent, the London, Dublin, Belfast trade had city from Denmark and Sweden practically controlled the price of the Australian article. The position now is changed, however, about two-thirds of all the butter imported into London during the winter months being of Australian origin. The great demand during the last few seasons Australian creamery butter has commanded a higher price than Danish. The Australians are learning how to pack their butter for shipment on the long voyage, and the more they learn the better prices they get. I have talked with Australian dairymen who knew all about the shipment of American butter made to London by Secretary Wilson of our agricultural department a few months ago. They are watching to see the results of the experiment with a great deal of interest, for it may mean something to them."

Egg Records.

Send in the egg records. We doubt not that many of our readers have been keeping a close account of what their hens have been doing and we are sure it will be of interest to others to know what records have been made. In making reports, give the names of breeds, numbers, and whether the fowls have been fed penned up. If no feed yation can be given it will be an item of added interest.

During the recent eclipse of the sun at Bombay, India, Prof. Lockyer secured many spectrum photographs. Some of these have been developed, and are found to exhibit changes in the "ape" of the chromosphere, second by second, at each of the four contacts.