Relieved

An eminent Englishman of science recently delivered a lecture during which an amusing incident occurred. In the course of his remarks he said something to this effect: "It is a well-established fact that the sun is gradually losing its heat, and that in the course of seventy million years its heating power will be so diminished that all beneficient effects will be lost, and no life can exist on the earth."

As soon as this sentence was uttered, a sturdy Briton in the rear of the hall arose and signified his desire to ask a question. "Pardon me," he said, "but how long did you say it would be before this terrible calamity would occur?"

"Why, about seventy million years," repeated the scientist, with a smile.

The questioner fell back into his seat with a deep sight of relief. "Thank heavens!" he muttered, "I thought I understood him to say seven million."

Could Play It

An Irishman who had come to New York was met at Ellis Island by his brother Mike. The latter undertook to show Pat the sights of the big city, pointing out the city hall, Wall street, Trinity and the tall buildings. At length they came to Chinatown.

Pointing to a Chinese laundry Mike exclaimed, "Look at this sign, Pat! Sure, an' ye never saw the like o' that in Ireland! Can you read it?"

"No," replied Pat, "but, begorra, if I had me flute here I could play it."

ON ACCOUNT OF THE COUNT.

"That is old Allrock's daughter, who married a count; her wealth is countless."

"And she wishes she were."

The Subject of Bobby's Prayers

"Bobby, I suppose you say your prayers every night."

"Yes'm."

"And what are the things you pray for?"

"Mostly that pop won't find out what I've been doin' through the day."

New York for Brains

Metropolitan Editor (wrathfully)—"I see that a Chicago paper is going to send its reporters to find the North Pole. Why in the world didn't you think of that first? You are discharged—"

City Editor—"Don't be hasty. I'm lying low to head a relief expedition and scoop all their news after they freeze to death."

No Chance of Failure

Upton—"How is Bilton getting along now?"

Downton—"Haven't heard lately, but I presume he is making money hand over fist. Last time I saw him he was on his way to Kentucky to start a factory."

"Hum! What did he intend to manufacture?"

"Corkscrews."

The Caller Snubbed

Mrs. Kawler (to hostess' child)—"Are you glad to see me again, Edith?"

Edith—"Yes'm, and mamma's glad too."

Mrs. Kawler—"Is she?"

Edith—"Yes; she said she hoped you'd come today and have it over with."

Saving the Patient

"Is the doctor taking the proper interest in your case?"

"I think he's doing his best. I told him there was nobody to pay unless I got well."

Where She Feels Worst

Elsie—"Mamma, I don't feel well."

Mother—"That's too bad, dear. Where do you feel worst?"

Elsie—"In school, mamma."

Ye Modern Mistress

Fair Guest—"My goodness! This room looks like a prison cell. What is it for?"

Hostess—"That is to lock myself in when I scold the cook."

A Matrimonial Net

Ida—"After all, a hammock is nothing but a net."

Ernie—"You are right. Many a girl makes a good catch in one."

Perry Pathetic—"Don't you wish you had so much money you had to scoop it up wit' a shovel?"

Felix Hawstead—"Aw, shovelin' is too much like work."

The Kid—"Mr. Knagg gimme this parcel an' said 'Take this to my good wife.'"

Mrs. Knagg—"The bigamist! I always suspected that he had another."

MAKING ACID PHOSPHATE

Importance of the Product in the Fertilizer Industry Leads to Publication of Bulletin.

The manufacture of acid phosphate has come to play such an important part in the fertilizer industry of the United States that the Department of Agriculture has just issued a bulletin (No. 144) on the subject, which is designed both for manufacturers and for progressive farmers. Phosphate rock, it is said, has almost entirely displaced bone, guano and apatite as a source of phosphoric acid and a knowledge of the exact composition of the rock is of importance because not only the phosphate of lime but all the impurities as well are acted on by the sulphuric acid used as a re-agent and influence the finished product.

Of all the impurities occurring in phosphate rock, compounds of iron are the most dreaded. Even in small quantities these elements are apt to cause a certain amount of reversion, and in large quantities may render the product sticky and unfit for use. By careful handling, however, phosphate high in iron and aluminum compounds may be made to produce high grade acid phosphate. On the other hand carbonate of lime is rather desirable when the quantity is not excessive.

Both the "den" and the "open dump" systems are in general use for making acid phosphate, each having certain advantages. In the "denn" system, after the rock and sulphuric acid are thoroughly mixed the compound is dropped into a closed, brick-lined chamber or "den," where the chemical reactions raise the temperature to a high point and are completed in twenty-four hours or so, the product being then ready for shipment. In the "open dump" system, as the name implies, the mixture of acid and rock is dumped on an open pile and may require a month or even longer to become fit for use. The fumes given off in the process, moreover, may become a serious nuisance in the vicinity of towns. On the other hand, the removal of the acid phosphate from the den is troublesome, and when done by hand sometimes dangerous.

The cost of producting acid phosphate, the bulletin says, depends on a number of varying factors, such as the size, location and equipment of the plant and the cost of the sulphuric acid. Exclusive of office expenses it may be said to range from $6.20 to $8.00 a ton. The product is sold on the basis of its so-called available phosphoric acid content, and is worth at the factory from 40 to 56 cents a unit, or twenty pounds. The phosphoric acid content runs from 14 to 21 per cent. of the marketed product.

See That Skimmed Milk Fed to Animals Is Pasteurized or Boiled

The fact that the foot-and-mouth disease may be communicated to cattle, sheep, other ruminants and swine, through the milk of infected cows, makes it especially important at this time for cattle raisers to make certain that the skimmed milk they obtain from creameries has been pasteurized. Even if there is no foot-and-mouth disease in the farmer's neighborhood, it nevertheless is a great safeguard for him to see that the creamery skimmed milk which he feeds to his animals has been pasteurized, as tuberculosis can be communicated through raw skimmed milk. So serious is the communication of tuberculosis through milk to swine that the meat packers discriminate against the hogs in certain dairying districts.

The department has long advocated this course, and the specialists hope that the danger of foot-and-mouth disease may lead those who have not been careful in this matter in the past to adopt this practice and continue it after the present epidemic has been stamped out.

Where a creamery does not pasteurize the milk, or where the farmer obtains skimmed milk from other farms for feeding to his hogs, he can make certain that he does not carry the foot-and-mouth germs or spread tuberculosis by bringing the skimmed milk to the boiling point before bringing it to the farm. Boiling does not interfere with its feeding value, although real pasteurization at 145 degrees for 30 minutes is the better practice.

Value of Coal Tar In Poultry House

Referring to the value of coal tar Hotchkiss says that if it is put in rat holes, runs, etc., rats, mice, mink and weasels will desert the premises. It is equally effective for lice, by coating it on the roost. For the latter it may be thinned with gasoline, if desired, and applied to perch and walls of the poultry houses with a whisk broom, once a year. The writer has found gas tar excellent for scaly-legged fowls. One application is generally sufficient to clean off the scales. Give the legs a good coating, allowing it to wear off, and the chances are the scales not only drop off, but the legs are in finer condition than by the use of grease.

Poultry Students

In the poultry department of Cornell University nine out of the fifty-six students are young women, and it has been discovered that they do the best work. Each student has a flock of thirty or forty hens. The women pupils use wheelbarrows to carry their feed cans and hoppers, and study the intricacies of all the machinery used from gasoline engines to bone-cutters and incubators. Every afternoon there is a "practicum" of two hours, which consists of planning and studying poultry buildings and colony houses, making egg crates, selecting fowls, the anatomy of poultry, the value of feed of various kinds and the scientific operation of incubators and brooders.

ADULTERATION OF OATS MUST STOP

Grain Shippers and Dealers Warned by Government that Two Practices Must Cease.

Seventy-five carloads of oats intended for export have been seized by the federal authorities because they were found to be adulterated within the meaning of the Food and Drugs Act. The adulteration charged is the addition of feed barley or water, or both. Under certain circumstances adulteration in these ways may be so profitable that it is believed to be at times a common practice among grain shippers. The Government, however, is determined that the practice shall cease and field representatives of the Department of Agriculture have all been instructed to exercise the utmost vigilance in detecting future shipments adulterated in this way.

Low grade barley which is known to the trade as "feed barley" is sometimes mixed with oats when there is sufficient difference between the prices of the two grains to make this profitable. This "feed barley" is the product which remains after the best grade of the grain has been separated and removed for malting purposes. It contains material percentages of weed seeds, foreign grains and dust, and the addition to oats of such a product is held to be a violation of the Food and Drugs Act. The addition of water to oats arises from the fact that the grain is sold by weight. Investigations of the Department of Agriculture have revealed the fact that water is sometimes added in the amount of from 2 to 4 per cent.

In the opinion of the Government officials there is no reason why either of these practices should be tolerated. Grain shippers and dealers, therefore, are being warned that the prevalence of the custom in the past will not affect the legal proceedings against future shipments found to be adulterated in this way.

VIGOR INHERITED

May Be Reduced By Injudicious Breeding

The natural inheritance of all fowls is constitutional vigor, provided of course they are not enfeebled by injudicious breeding. Constitutional vigor can be maintained and brought about by choosing the strongest, healthiest and hardiest of the stock for breeders every spring, and by killing off the weak and sickly ones in the fall. The introduction of fresh blood frequently not only keeps up the stamina, health and vigor of stock, but it also enables them to resist sickness and sudden changes of weather much better than fowls closely and continually inbred, or fowls not bred to any degree of constitutional excellence, or selected for establishing any permanent quality.

Field Test for Dipping Baths

A practical field test for lime-sulphur dipping baths for live stock has been devised by scientists in the government department to lessen the difficulty experienced in maintaining these baths at the standard strength. The new test will be of use not only to the federal and state authorities concerned with the supervision of official dippings, but also to private persons who wish to test the strength of their preparations.

The new method, it is pointed out, is intended for field use only and can never take the place of the more accurate laboratory analysis. Standard iodin solution is added to a measured quantity of the bath until all the calcium polysulphid in the latter has been decomposed. In this way the quantity of iodin required serves to measure the amount of calcium present as polysulphids and thus, with sufficient accuracy for field use, the amount of sulphid sulphur. The complete decomposition of the calcium polysulphid is indicated by the failure of the bath liquid to color when a dilute alkaline solution of sodium nitroprussid is added.

No technical knowledge, however, is required to make the test. Each cubic centimeter of the test fluid employed in its operation represents one-tenth of 1 per cent sulphid sulphur in the bath. A description of the necessary apparatus and directions for operating are published in a new bulletin (No. 163) of the department, "A Field Test for Lime-Sulphur Dipping Baths." The bulletin also contains tables which will guide anyone in bringing the dips up to the strength required by official regulations. In dipping baths for sheep these call for 1.5 per cent of sulphid sulphur and for cattle 2 per cent.

Fresh Eggs

An egg to belong to the strictly fresh egg class should not be over three days old, in summer weather, and a week old in winter. But in either case they must be kept in a cool temperature. Heat very quickly turns an egg. Crates of eggs allowed to remain in the hot sun for several hours will very quickly change the air conditions.

Large Roaster

A "large roaster" means a plump, soft chicken of four or five pounds weight. The broiler weight in March is one and one-quarter pounds each; in April, one and one-half pounds; in May, one and one-quarter to two lbs. Old cock birds have a special classification and do not come under the head of "large roasting" fowls.

POTATO POINTERS

How a Fifteen-Year-Old Club Member Raised His Crop on Irrigated Land

A fifteen-year-old member of the Department of Agriculture's and Utah's Agricultural College Potato Club has raised a crop of potatoes valued at $187.77 on one-half acre. His net profits were $141.07. This is the best record of all the Utah Potato Club boys, and as a result Howard Dalton, of Willard City, Utah, the champion, was given a trip to California.

Although the year was not quite so good for potato production as usual, young Dalton made a record which has probably not been exceeded more than a dozen times in that district, and then only by Merle Hyer, and the potato champion club adult experts, who had studied and put into practice the most advanced methods of farming. As others who grow potatoes on irrigated land may be interested in this boy's achievement, below is the story in his own words of just how he did it, which may be of value to potato growers not only in Utah but in the irrigated sections of Colorado, Idaho, Washington, California, Wyoming, Montana, Nevada, Arizona, New Mexico, Kansas and Nebraska. Here is the story:

"In the early spring I bought my seed potatoes at Burley, Idaho I purchased the Idaho Rural potatoes. They were not especially selected seed, therefore I was very careful in preparing the seed for planting. I was anxious that every seed piece had one or two perfect eyes on it. I then treated the seed with a formaldehyde solution (one pint to 30 gallons water.) This treatment consisted in soaking the seed (before cutting) for two hours in the prescribed solution. The purpose of the treatment was to kill any scab germs appearing on the surface of the potatoes. Other than this there was no treatment given.

"From March 20 to March 30 I prepared my land. I covered the ground with barnyard manure, using 8 tons of wet manure to the half acre. I plowed the land 12 inches deep, using four horses for the work. I immediately followed the plow with a spring tooth harrow. I harrowed it three different times. I did the plowing in the forenoon and followed with the harrow in the afternoon. I did this to conserve the moisture and mellow the soil. After harrowing I pulverized the clods by dragging up the soil with a square framed timber. I tried in every way to be particular about every phase of cultivation as I figured that the secret of my success was good cultivation.

"Five days later, on April 5, I again went over the land with a spring tooth harrow. The following week I again went over it with a spiked tooth harrow which kept the soil moist and mellow. Just before planting I went over it again with the square timber in order to make it perfectly level. On April 18 I planted the seed in plowed furrows 31 inches deep and the rows 30 inches apart, the seed being dropped about 12 inches apart in the rows. The seed was then covered about 4 inches deep with a small hand plow. As soon as the little plants appeared above the ground I began my work on the field. I at once freed the field of weeds by giving it a thorough harrowing with a spiked tooth harrow. This I did May 5 and repeated the same treatment on May 12. On May 26 I used the hand cultivator drawn by one horse, giving them a thorough cultivation with this implement, after which I cultivated them once with the hand hoe, cleaning out all of the wedes.

"During all the time I was working in my potatoes I watched their growth very carefully, as I was warned about the appearance of plant diseases and insect enemies which might appear to injure the plants. Fortunately, as far as I was able to detect, neither plant diseases nor insect enemies appeared, as the growing plants had such a strong, thrifty appearance.

"Up to June 15 the plants had grown rapidly and gave a strong, vigorous appearance. Soon after this date they began to blossom and on June 25 I gave them the first application of irrigation water. I irrigated them on July 5 and again on July 20. The crop was matured with but these three applications of water. After the second irrigation the vines were so large that I could not work in them without destroying them. The operations practically ceased from this time on until the tubers were ripe and ready for digging. I sent a selected 50 lbs to the State Fair which was held at Salt Lake City, October 3-10, for which I received honorable mention by the judges. On October 13, 14 and 15 I harvested the crop and the potatoes were weighed and sold right from the field. I found on careful checking of the weights that my half acre had produced 360 bushels of marketable potatoes, the equivalent of 720 bushels per acre.

"The following table will give the itemized cost of production with the net profits per half acre.

Value of crop	$187.77
COST	
Value of manure	$2.00
Spreading manure	4.00
Plowing	1.00
Harrowing six times	1.50
Leveling	1.00
Cost of seed; 450 lbs.	5.20
Planting seed	2.00
Cultivating two times	1.00
Irrigating three times	1.50
Weeding once	1.50
Harvesting	18.00
Rent on land	8.00
Total cost	$ 46.70
Profits	$141.07

RIVER TRAFFIC IN THE UNITED STATES

Relation of Freight Rates to Farm Prices—Traffic is Chiefly Local.

That river traffic in the United States is now generally local and long runs by through fast steamers a thing of the past is shown by an investigation of water transportation in this country which the United States Department of Agriculture has just completed. The report, published as Department Bulletin 74 "Inland Boat Service," deals in particular with freight rates, time of transit and length of routes.

A few hundred miles, the investigator found, is usually the maximum run of any steamboat, one of 400 miles or more being more exceptional. On only 25 of the 102 routes for which this infgormation was available, was the avérage rate of speed over 10 miles an hour and on 37 it was less than 6. An average of 10 or even 6 miles an hour amounts to 75 or 100 miles in a night's run, which is a good rate of speed for local freight traffic.

In connection with the freight rates the investigator paid particular attention to their relation to the farm price of various producs. This was found to vary greatly with the character of the goods. For example, on a 25-mile route in Maine the rate for a barrel of apples was 15 cents, while the average farm price was $1.725. The freight rate in this instance was thus 8.7 per cent of the farm price. In the case of cotton traffic in the South this percentage ranged from .9 to 3. Eggs varied still more, the percentage ranging from .5 to 10. Because of its great bulk, hay was frequently charged from 10 to 40 per cent of its value on the farm. With wheat the range was from 3 to 15 per cent.

In the east the principal routes of steamboat lines include those of the Hudson River and the Chesapeake Bay. On the Hudson there is considerable variety of traffic, through service between New York City and Albany, a number of shorter routes between various cities along this line, and, thirdly, the through traffic of canal boats carrying cargoes from the Erie Canal to tidewater. In Chesapeake Bay traffic radiates principally from the cities of Baltimore, Washington, Norfolk. Through service between Baltimore and Norfolk, Baltimore and Philadelphia, Norfolk and Washington, and Norfolk and Richmond, is maintained throughout the year.

The longest routes are to be found in the Mississippi Valley. From Cincinnati, for example, regular lines run down the Ohio and Mississippi rivers as far as Memphis, a distance of 749 miles. Another important river port is St. Louis, from which regular lines run as far in one direction as St. Paul on the upper Mississippi, and in another down the river to Memphis. Other lines reach Kansas City, Peoria, Ill., and mount the Tennessee as far as Waterloo, Ala. From Memphis through boats run to Vicksburg, where they connect with boats for New Orleans.

New Orleans is the center of several important routes of river traffic. One line follows the Red and Black rivers to Harrisonburg, La., and various other routes traverse the network of rivers, bayous and canals in southern Louisiana as far west as Bayou Teche, and as far north as the Red River. There is also considerable traffic on Lake Ponchartrain.

On the Pacific Coast an important system of waterways consists of the rivers emptying into San Francisco Bay, and here there is a rich truck region which is not conveniently reached by rail but is comparatively easy of access by boat. San Francisco, Sacramento and Stockton are the principal centers for this traffic. A second coast system consists of the Columbia River and its tributaries. From Portland steamers run down the Columbia to Astoria and up as far as Celilo Falls. Above the Celilo Falls other boats reach points on the upper Columbia and Snake Rivers.

Poultry Remedies

It is claimed that nux vomica is a specific for liver complaint in fowls, if taken in time. The dose is given in homeopathic form, allowing six pills three times a day to a large fowl, and less to a smaller one.

The following formula for roup pills is recommended: Half a dram each of cayenne pepper, ginger, mustard; half ounce of plain vaseline or clear lard; mix thoroughly and add enough flour to make a tough dough. Make into pills the size of a pea. Dose, one each night.

The following is said to be the recipe for making Vale's roup pills, a popular English remedy: Hydrastin, 2 grains; sulphate of iron (dried) and sulphate of copper, 3 grains of each; powdered capsicum, 12 grains; oil of copaiba, 20 20 drops. Venetian turpentine and calcined magnesia, of each enough to make 24 pills. Dose, for adult fowls, one or two pills night and morning.

Diseases of the liver are caused by overfeeding of fat-producing food or by the use of too much spice or stimulating substances. This patricular trouble is pypertrophy of the liver, which is an enlargement of that organ, and is often found in hens kept over the second winter. It is due to feeding too much fatty food, combined with a lack of exercise. In the early stages the disease may be arrested by feeding lightly on bran mashes and green food, and to each quart of drinking water adding one-half teaspoonful of muriate of ammonia.

The mare selected for breeding should be sound and smooth with straight legs and a good temper.

Common Troubles

The Maine Experiment Station has issued a bulletin on poultry diseases. We give a few of the remedies prescribed for diseases which are oftenest called on to treat.

Medical treatment of turkeys affected with blackhead is of little avail, at least in the present state of our knowledge. Cole and Handley (Rhode Island Expt. Sta. Bul. 141) recommend the following: (1) Isolate the sick bird from the flock and place it in a dry, well lighted location free from cold and draughts. (2) Feed sparingly on soft, light, easily assimilable food, with little grain, especially corn. The chief preventive measures are to keep the birds on fresh ground; to isolate any birds showing the least sign of disease, to destroy all dead birds and to protect the turkeys from contamination carried either by new stock or by other poultry or by wild birds, as sparrows, crows, etc. Dr. Morse (B. A. I. Circ. 128) recommends for turkeys under three months old one-half grain copperas in the morning and a two and one-half grain pill of salicylate of soda in the evening. Give Epson salts every three or four days and keep the grounds and floors well sprinkled with lime.

Through the kindness of Dr. Philip B. Hadley the writers have had the opportunity to read the manuscript of Bulletin 144 of the Rhode Island Experiment Station dealing with fowl cholera. On the basis of his experimental work Dr. Hadley recommends subcutaneous injections of 5 per cent carbolic acid as a treatment for individual birds. In the summary of this bulletin Dr. Hadley says: "At the Rhode Island station attempts have been made to prevent the development in fowls of cholera artificially produced by inoculation with the fowl cholera organism. The protective inoculations have involved subcutaneous inoculations with a five per cent solution of carbolic acid in amounts of from two to four c. c. daily."

This is a new treatment and may be valuable with pure-bred fowls. The old rule that prevention is better than cure—sanitation beats medication—is the best for commercial poultrymen.

This is not properly a disease but a symptom which accompanies several different diseases. Chickens are said to have limbernecks when partial or entire nervous control of the neck muscles is lost. The neck may hang limp so that the head falls on the ground between the feet. Sometimes the bird is able to raise the head from the ground by making a great effort.

A bird is sometimes said to have limberneck when the dorsal or lateral neck muscles are tense, the head drawn convulsively backward, but this is more often called "wry-neck."

Both limberneck and wry-neck are due to nervous disorders which arise from different causes. "Wry-neck" is usually associated with direct brain or nerve irritation and occurs in epileptic spasms, but also sometimes occurs in rheumatism. Limberneck is usually associated with colic, acute indigestion, intestinal parasites, or ptomaine poisoning. No treatment for limberneck as such can be advised. Effort should be made to ascertain and cure the diseased condition which is responsible for this symptom.

Raise Things

It is the normal function of land to raise things. If any man doubts this let him try to keep anything from growing on a tract of land for a few years and see what time, toil and cash is costs him. Nature has made land to raise things and it will do so in spite of any but the most drastic treatment. But nature does not ask land to give of its substance to raise things without some return. Whatever the land produces in a natural state, whether grasses, trees or animals, in due course of nature it all goes back to the land. In past generations many men have overlooked this fact or disregarded it. They have compelled their land to raise crops, they have hauled those crops away, they have failed to put anything back. They have "rested" their land by changing from corn to oats, from oats to wheat, and so on, until the land has refused to grow these useful crops and has sought to rest itself by growing only stuff that man would not find it profitable to take off. Natural restoration by this means is a slow process—but let us remember that nature is never rushed for time or concerned about the finances of its methods. Raise things, but never forget the obligation, sternly imposed by nature, of putting something back.

The Englishman pays a rental of $20 to $30 per acre for land on which to grow turnips to feed his sheep, and fattens his lambs almost entirely on them. It looks as though there might be something about this growing and feeding of turnips which we Americans have not yet learned.

Don't imagine that the hog is more susceptible to disease than other farm animals. The trouble is not with him, but with the man who fails to provide him with wholesome food, pure water and comfortable quarters.

Pick off all the blossoms from newly-set strawberry beds; thus you send all the plants' strength back into themselves—into growth. It is unwise to let plants fruit the first season.

It is said that in some countries of Europe a milk strainer is never used. The man at the creamery weigh room door might sometimes imagine that they are a scarce article here in America.

Too often the extravagant who start out in the parlor car come back in the freight.