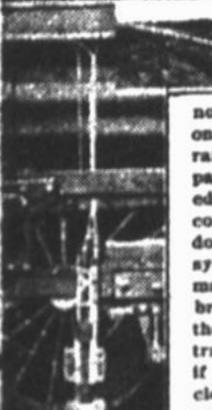
This Viaduct on the Santiago and Valparaiso Railroad, Recently Completed, le Considered a Triumph of Engineering. A Giance at the Illustration Will Show the Difficulties That Had to Be Overcome by the Build-

NEW AUTOMATIC STOP BRIGHT FUTURE FOR ROADS

DEVICE, IT IS CLAIMED, CHECKS TRAIN'S SPEED AT ONCE.

Men of the Rail Will Recognize th Simplicity of its Construction and Method of Working-Electricity is Employed.

It is claimed that a train going 6 miles an hour can be stopped within 2,000 feet by means of an apparatus



now being tested on an American system, and autothe train at the entrance to a block

the tires at a distance of 22 inches figure of 26.15 miles of line operated from the rail. This ramp slopes each per 10,000 of population will fall tosection of the road is equipped with a ed per 100 square miles of area will contact shoe that engages the ramp rise. and is mounted on the lower end of a vertical rod, the whole being sup- steady and rapid; the growth of railported on the crosshead guides. As way mileage will be much slower in the locomotive passes the ramp this shoe is raised three inches. The shoe in the Chicago Daily News. perates a piston and through this he throttle and sets the brakes if carned) is \$63,535 a mile; that of the the rear end of the ramp is not elec- United Kingdom \$277,147, of France trically charged, while if it is elec- \$148,463, of Germany \$116,365, of trically charged, magnets are ener. Switzerland \$122,010. We compare gised that hold the mechanism and best with Canada's \$64,054. prevent it from operating. The con- As population grows and traffic begrol consists of electrical connections comes denser the capitalization of our arranged that the rear end of the roads will increase. amp is charged only when the block clear. The forward end is always rged, so that trains are not interwith when backing.-Popular sanies.

Novel Railroad Bridge. a bidge that is to be built for the land government railroad over the rajoe river in Java has been made complete in the shops in Holland and so carefully has this been done that no field work will be required in recting the steel structure other than is far from any kind of shop facilities, and to make sure that the struc- freight locomotive over more than one ture would go together properly it was engine district, which will average first erected as carefully as if on its from 100 to 150 miles. Under electhe manufacturing company in Hol- can be run over several divisions withland. Following this it was taken out any longer stops at the present down and is to be shipped by steam- terminals than would be made at orer to Java. The bridge is of unusual dinary way stations. design, consisting of three arched spans of steel connecting with short, gines are obtained partially by the straight trusses over the piers. It quality of the coal used and by the has a total length of 608 feet 10 inches ability of the fireman to keep plenty of and weighs 580 tons. It is designed | coal in the firebox. With electrical ento carry a single track railroad hav- gines they can be run at fairly uniform ing a gauge of three and one-half feet.

Res.

Rush for Locomotives. dered 940 and the rate of orders is whole systems. increasing, indicating that the domestie call will exceed 1,000. The foreign for ten months are 1,581. Word that other neutral counsend orders to this country.

soupled Nest. tmoreland (Eng.) farin-

Expert Sees Nothing but Prosperity for American Lines-Comparison of Capitalization.

A study of some recent comparative statistics issued by the bureau of railroad economies ought to repay the instock market prices.

So far as they could be compared, the railroads of 38 countries were analyzed and certain facts brought out that should indicate roughly the development to be expected in the Unit ed States.

of area, our country is behind practically all of the older nations of commercial importance. Our figure is 8.4 France's 12.18, Austria's 12.2, Denmark's 15.45, Germany's 18.08, Ho land's 18.3, Hungary's 10.61, Italy's 9.78, Switzerland's 19.38, Belgium's 25.78, and the United Kingdom's connection with a (England, Scotland, Ireland and double-track block Wales) 19.3. In this respect we are ahead of such countries as Japan matically sets the Sweden, Cuba, Bulgaria, Roumania, Spain, Portugal, the South American countries, New Zealand and Australia.

In miles of line operated per 10,000 if the block is not of population we are under Australia clear. The track (excepting New South Wales), Canada part of the ap and the Argentine, and we are far consists above the old countries named in the a little calf is none too soon. of a steel ramp 180 proceding paragraph.

It is reasonable to predict that our my from the center, the center being | ward the 5.71 of Germany or the 5.13 rue inches higher than the ends. of the United Kingdom. It will fall neh locomotive operating on this faster than the figure of miles operat-

> Our population growth will continue proportion, writes John M. Oakison

Our railroad capitalization (upon pneumatic mechanism that closes which interest and dividends must be

ALL FAVOR ELECTRIC POWER

Many Important Facts Brought Out a Comparison Between Its Use and That of Steam.

The fact that no boilers are required on electric locomotives elminates one of the large sources of trouble for the motive power department. One locomotive can also be run over several different divisions without injury to it or without reducing its efficiency. Unat of connecting the members, says der present operating conditions, with Popular Mechanics. The bridge site steam locomotives, it is rarely possible to run either a passenger or permanent location, in the yards of trical operation, solid through trains

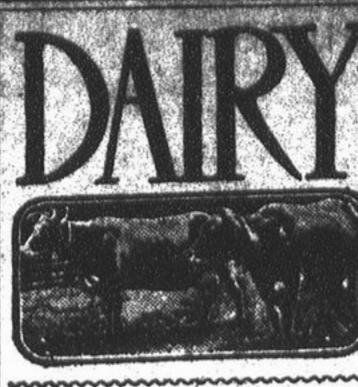
The maximum results for steam enspeed and in making long, heavy mountain climbs they should be as efficient for the last few miles near the top of The call for locomotives the prest the climb as when starting up the mt year is very large. American roads grade. The success of the work will for the first ten months of this year mean the gradual electrification of out air. The lack of sufficient water

> Of Course, It's a Whopper, A paragraph is going the rounds of

some out to the railroads that if the Eastern newspapers to the effect that there are more than a hundred are space now, as the girl students weighing more than two to the shops will be fully oc- hundreds pounds each enrolled in the buted later. Orders have been taken University of Kansas. It has prompted Spain and Greece, and it the Toledo. Blade to remark that it constitutes the answer to the old that have thought of Germany query: "What's the matter with Kansas?"-Kansas City Star.

Hour-Glass Auctioneer.

An ancient custom has just been obmds through served at Chard, Somerset, England, of service and calving. This enables a nest with 25 eggs in when a meeting of the burgesses con- a dairyman to avoid many mistakes degrees Fahrenbelt, for about 48 dropping board is a dairyman to avoid many mistakes was not the ducted the annual letting of the mar- that might prove costly. on examining the eggs ket tolls. An hour-glass was set, and sem belonged to while the sand trickled from one half



FEEDING POTATOES TO COWS

Value of Tubers for Milk Production Depends Upon What Other Kinds of Feeds Are Given.

The value of potatoes for milk production depends to a considerable extent upon what kind of feed they are fed in connection with. With clover or alfalfa hay, potatoes would have greater value than if fed with wild or timothy hay or corn fodder. This is true because potatoes are rich in starch, or what is known as carbohydrates in feeding terms, and low in protein. Clover and alfalfa are rich in protein, while the other feeds mentioned are low in protein. Putting two feeds together that are both low in protein does not bring as good results as when they are combined so that the feed low in protein can be fed with a feed high in protein. By combining potatoes with some feed high in protein, they could be made to equal about one-fourth the feed value of oats (ground) for dairy cows; that is, pound for pound. Combined with ordinary farm-grown feeds, potatoes would hardly have this value for milk production in comparison with ground oats. According to this estimate, potatoes would be worth only 15 cents vestor whose vision is not limited by a bushel or less when oats are worth 32 cents a bushel.

Potatoes have a somewhat higher value for meat production than for the production of milk and are more valuable for pigs or for fattening cattle than for milch cows. With the price of potatoes below 25 cents a For instance, in the number of miles bushel ft generally pays to feed them of line operated per 100 square miles on the farm, especially if there is a shortage of grain or a long distance to haul to market.

EARLY TRAINING FOR HEIFER

Much Difficulty Experienced on Some Farms With Young Animals-Kindness is Favored.

On some farms great difficulty is experienced in training the young heifer to be milked. Often the methods resorted to are brutal, and the permanent result is more or less a failure. The actual training of a dairy heifer should begin long before she comes in milk. In fact, when she is

All dairy animals should be taught to lead, to be groomed and handled in every way while they are young. The important thing is to manage



Young Holstein.

them in such a way that fear of human beings is never instilled into

Above all things, they must be handled with gentleness and never abused. A heifer which has been raised in this manner does not need to be broken to milk, but accepts the procedure as a matter of course.

WHEN SILAGE IS DANGEROUS

May Not Seem to Injure Some Animale, but it Has Lost its Food Value-Learn Little Details.

(By PROF. C. H. ECKLES, Dafry Department of University of Missouri.) Spoiled silage may not seem to injure some farm animals, but it is dangerous to others, and has lost much of its food value for all. The loss results almost entirely from mold, and could have been prevented, although the only thing to do now is to study what has happened in your silo and learn how to dd better next year.

Unless the silo was sealed or feeding was begun immediately after filling, from six inches to a foot at the top is sure to be spoiled. It should be put where it cannot be reached by any farm asimals. Lower down, the presence of spoiled silage always indicates the presence of air, as the molds which give it the appearance of rotten manure could not work within filling is the commonest cause of the presence of air, but sufficient tramping in an airtight structure is also necessary. Red mold, which sometimes causes alarm, is no more dangerous than the less conspicuous forms which often pass unnoticed.

Age to Breed Heifers. Early breeding stunts growth. Heifers should be bred to drop their caives when about two years old or

Records Prevent Mistakes. Whenever possible, record the dates

Water for Dalry Herd. Make careful preparations to sup



Feeding and Inspecting English Flock of Young Birds.

What breed of chickens to use on | About half way between the Medithe farm, is an ever recurring question | terranean and Asiatic breeds in most in the correspondence of the poultry characteristics are the American and department of the Kansas State Agri- the English breeds. They are fair cultural college. So far as those qual- layers of light brown eggs, and while ities that are important on the farm | not so difficult to control as the Legare concerned, the principal distinc- horns, are very much more active than tions are between classes rather than the Asiatics and usually are more de-

The Mediterranean breeds are small, strains of the American breeds lay sprightly, very nervous in disposition, nearly as well as the Mediterraneans. are good rustlers, can fly over any and at the same time furnish a better fence that is likely to be constructed, carcass for the home table. of pure white eggs of fair size. The Mediterranean class includes Leghorns. Anconas, Andalusians, Spanish, and Minorcas. Of these, the Leghorns are most popular among the breeds, and



White Plymouth Rock Cock.

the single-comb whites are the most popular of the Leghorns.

In the Asiatic class are found birds of the opposite extreme in simost every characteristic. They are the largest of the chickens, are slow maturing, and are very heavily and loosely feathered over the body and down the the greatest step in advance that can breeds that comprise the Asiatic class are the Brahmas, the Cochins, and the Ing the summer months, so that infer-Langahans.

-Sew Skin Tears.

These areas are more or less well de-

fined, one on each side of the breast,

on the thighs and the joints of the

wings. After these have been plucked

the remainder of the body is very

neck or above the hock joints, except-

ing in the case of capons, which are

usually dressed in a certain showy

Remove the pin feathers with a dull

knife, catching them between the

blade and the thumb and pulling out

Then cool the carcass thoroughly.

Dry cooling is best, but the ice-water

in dry cooling, the birds are merely

hung in dry, cool air, as in a refrige-

used, they are first thrown into water

of ordinary temperature and left for a

short time, then transferred to ice wa-

well as dry-cooled and its nutritive

Be sure to cool thoroughly. It takes

a long time to draw out every trace of

animal heat, but if this is not done

trouble is sure to follow.

ter until the cooling is completed.

rator, until all of the animal heat

without injury to the skin.

my the majority of producers.

Do not leave any feathers on the

quickly finished

fashion.

PREPARE FOWLS FOR MARKET carefully. Large tears in the skin may be remedied by sewing up with fine After Carcass Has Been Picked Clean It Should Be Thoroughly Cooled white thread. Remove the blood from

sort according to size and quality and Picking should be started just as pack for shipment. soon as the bird has been stuck. If If the stock is to be shipped without delayed for any reason the work belee. It should be dried and placed carefully in clean boxes or cases of saftable size. When ice is used, barrels the coarse quills of tail or wings and make the best packages, the dressed then go after the feathers covering the poultry and eracked ice being packed more tender sections of the body. in alternate layers, the whole topped

tile eggs may be producted.

country is the Orpington.

The real choice to be made in the

breeds or the Orpingtons on the one

hand, and a Mediterranean breed on

the other. As a general thing, the

Leghorns will probably lay more eggs

the year round than the American

Within the American class the

choice is largely one of personal taste.

pin feathers are being demanded more

and more by the best markets, how-

ever, is having more and more triffu-

once in favor of the white and buff

varieties. On the other hand, it is

generally understood that where coy-

otes are still about, the white varie-

ties are more conspicuous and more

in the preparing of eggs for market

be made is in educating the farmer as

birds away from the laying flock dur-

the head and any dirt from the feet,

easily picked up.

with a large piece of ice. BEST DEMAND FOR CHICKENS

Holiday Season is Time for Big Birds -Turkeys, Geese, Guinea Hens, Etc., Are Wanted.

Chickens are more in demand almost any other time than during the holidays, although a great many are used then, too, but the demand for chickens is a steady one, much more steady than the demand for ducks. geese, turkeys, guines hens, etc. Although these are always demanded process must of necessity be adopted the chicken seems to meet the common requirement more often. It not so large, and Its first cost is less and so it appeals to the many with smaller purses and for smaller occa-

removed. When the wet process is sions. The holiday time is the time for the big birds, as big feasts are the rule, and the person who would hardly think of a turkey of heavy weight any Wet-cooled stock does not keep as other time, buys one then.

> Discard Immature Birds. Discard both male and female birds that have an immature look or that have been stunted, as well as latehatched individuals.

Make Excellent Substitute for Green Feed During Winter-Sprouts Are Very Succulent.

Green food is excellent for poultry but it is sometimes hard to get, par ticularly during the winter. Where rabbage, mangels, etc., are not tainable artificially sprouted make an excellent substitute. If properly prepared it makes as good a green food as there is. A leading authority finds the following method most successful for preparing it:

"The oats should be soaked in wa-

depending on temperature, they will have developed sprouts three to four inches long and a growth of roots, the entire mass being very tender and suc-

> "About one square inch of feeding surface is supplied daily to each bird or as much as it will clean up anickly. they are laxative and are apt to produce diarrhea."

Keep Dropping board Clean. if you do not keep the drop a week you had better not have an

bined to the best advantage fruit and bees are directly tial crops, meat, fruit and honey, be grown on the same ground time, each contributing to the suc of the other in various ways. Fruit trees afford the shade at

protection necessary for fewls a bees. They yield food in bloo insects and fallen fruits and in return eagerly devoured by the industrious beneficiaries of their beauty. Fowisnot only decrease the insect the orchard, but they deposit rich one nourishment unsurpassed in quality for soil. The majority of farmho chards or plots of ground that with into ideal poultry runs. Where beginfruit, future growth should be considsirable for the general farm. Good to bear under ten years, nor attain full I two of growth under twenty years. Many de | with strable crops can be secured in the of pole common on farms are the Plymouth Rocks, the Rhode Island Reds, and the cherry trees between the apple trees. This leaves ample room for bush fruit in a straw Wyandottes. The American breeds which are seldom seen any more are or berries to be raised and cultivated. the Buckeyes, the Javas, and the Dom-It is best to put early baby chicks in iniques. The only English breed that the young fresh-planted trees and has had any large degree of popularbushes to prevent damage to te ity among poultry fanciers in this roots from scratching. Baby of thrive best among bushes and vines.

HOW TO PRUNE FRUIT TREES

Trimming During Dormant & mer Pruning is Exhausting.

Heavy top pruning increases the woody growth of trees. It may invigorate weak trees. It tends to less truit production or even check it altogether. It induces the production of water sprouts, which are practically tree is concerned.

Prune weak trees relatively heavier than strong growing ones. Prune every year, removing small amounts of wood, rather than removing the same age gate at longer intervals. Remove water sprouts as fast as they appear.

Root pruning lessens wood pro tion and is sometimes practical in case of a tree which retuses to bear truit. The eclentific principle involve things, fruit is produced as a ma to the importance of keeping the male



Young Peach Trees Not Headed Back Will Break With First Good Crop of Fruit.

stage of growth is reached. Root grue

nently weaken the tree. Pruning during dormant A tends to wood production and, during the growing season, to fruit produc tion. This does not mean, however it is exhausting and if continued reduces the vigor of the tree. It should be resorted to only under special ditions. Winter pruning, if properly

the standpoint of fruit production. Trees properly pruned from plant time to fruit bearing need com tively little pruning thereby. practice also gives better formed trees and better results than if the yo the removal of large branches.

one wood and to shape the tree. Re ing its dormant period, that is while the leaves are off, induces wood ing the roots has the same a