

## HOW

**MOTHER EARTH RECEIVES HEAT FROM SUN'S RAYS.**—The earth's heat and light come from the sun's rays and not from the interior of the earth. The earth is dependent on the sun for both heat and light, and no form of life could exist if the influence of the sun were withdrawn. There are several reasons why high altitudes are colder than low ones, even though they are nearer the sun in the daytime. The air in high altitudes is thinner, absorbing less heat from the direct rays of the sun because it has less carbon dioxide, water vapor and dust; being thinner, it is less effective in retaining the heat radiated from the earth below. The wind in high altitudes keeps the air in contact with the heated mountain sides in constant motion. There are likely to be many cloudy days in mountainous regions and the clouds shelter the mountains from the sun. The side of a mountain toward the equator may receive the sun's rays more perpendicularly than a flat surface and may become very hot in the daytime, cooling off rapidly at night. The side turned away from the equator receives the sun's rays more obliquely than a flat surface and for a much shorter time. This tends to reduce the average temperature of mountain regions.

## How Fishes Use Sense

### of Smell to Get Food

The sense of smell is highly developed in fishes, and this sense probably plays the leading role in obtaining food. Scientists, however, have not yet been able to determine accurately the relative extent and intensity of perception of the various sense organs in fishes. "From what is known at present," says the United States bureau of fisheries, "it is believed that the sense of smell, along with that of touch, plays a greater role in the life of a fish, as far as obtaining its food is concerned, than that of sight. The sense of sight in fishes seems to be limited more to the perception of changing lights and shadows, since a fish will snap more quickly at a moving object." There is a common but erroneous notion that fishes smell with their gills. They smell with their noses.—Pathfinder Magazine.

## How Electric Current Acts

Quoting from Thomson's "Outline of Science": "In itself an insulated conductor carrying current is not dangerous. A bird may perch on it with impunity, and men who repair the overhead wires of tramways handle them safely with bare hands, because the platforms on which they work are insulated from the ground. But if a person touches both the insulated conductor and the earth or the other conductor, he completes the circuit and may be killed at once. In continuous-current circuits for traction purposes it is usual to insulate the positive conductor and use the rails as the return or negative conductor."

## How Neon Signs Are Made

Neon is a colorless, inactive gas which occurs in the atmosphere. Neon has the property of glowing with a peculiar brilliant fiery-red tint when an electric current is passed through it in a near vacuum. For advertising purposes the gas is put into hollow glass tubes, which are twisted by a combined heat and blowing process into the required shapes to make script letters. The air is removed by a vacuum pump. If a few drops of mercury are inserted in the tube of neon, the light becomes a brilliant blue. In a yellow-tinted tube it appears green.

## How Fog Can Be "Lifted"

Fog is one of the motorist's worst enemies. But by means of an attachment to the exhaust of a car, it has now been found possible to create a rising current of heated air which literally lifts the fog for about 10 feet before the front wheels. The process is rapid enough to allow a forward speed of about 15 miles per hour, no matter how dense the fog may be. This invention for dissolving fog can be attached easily to the car, and is even simpler in operation than the ordinary windshield wiper.

## How to Test Water

Here is a simple way to test the purity of water: Put half a pint in a clean bottle, and add a few grains of lump or loaf sugar. Make the bottle tight—a glass stopper is preferred. Place the bottle in a warm, well-lighted room. If it remains clear after an exposure of eight or ten days it is safe to use; but if it becomes turbid, it is impure and unsafe to drink.

## How Patent Grant Operates

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## BUS COMPETITION HITS RAILROADS

**Bankers Association President Asks If Unfair Aid Is Given Motorized Transport—For Rail Mergers.**

**NEW YORK.**—Fair treatment for the railroads in respect to highway motor competition was called for by Rome C. Stephenson, President American Bankers Association, in a recent address here. He also strongly endorsed "sound economic railway consolidation" and praised President Hoover for his initiative in this respect. "I am very strongly of the opinion," that one of the measures which would help materially to put back business where it ought to be is the Eastern four-system plan of railroad consolidation as announced recently following negotiations instituted by President Hoover," said Mr. Stephenson. "Its adoption by the Interstate Commerce Commission would tend to stabilize the transportation industry, facilitate operation and exert a favorable influence on business in general."

"It is a fact well known to business leaders that our railroads are now facing a crisis. Not only do they need protective laws to meet competitive situations arising from increased use of our highways and waterways by other carriers, but they need unification such as the proposed four-system plan provides. Our President has acted wisely in assuming a leadership in this respect and his move deserves the support of every clear-thinking citizen."

Mr. Stephenson declared that the railroads have served this country "superlatively well that we are prone in our public affairs to overlook our dependence upon them and our obligations to them. The past, present and future progress of the United States is inseparably bound up with their welfare. In neglecting just consideration for them we are even more neglectful of the public's best economic interests."

### A Question of Public Interest

"We are confronted with the question as to how much more the public economic interest will stand an invasion of the welfare of the railroads by forces and difficulties not of their own creating and not within the scope of their own unaided powers to combat," said Mr. Stephenson. "I refer especially to new competitors that are undermining the hard-earned position of the railroads, not only with the aid of natural economic forces but also through the aid of government policies which, positively or negatively, tend to give these competitors undue advantages over the railroads."

"It goes without saying that the railroads have no right, nor claim any, so far as I have been able to discern, to complain at legitimate competition in the field of transportation, for the public is entitled to the best possible transportation at the lowest practical cost. But equally does it go without saying that this cannot be fairly brought about by using, or by failing to use, the taxing powers of government to enable competitive methods of transportation to do things they could not otherwise do as unaided private enterprises, particularly when such action impairs the invested rights held in good faith by great masses of our people in established enterprises that are serving the public well."

Mr. Stephenson said it was not his purpose to argue against such competitive transportation as the highway passenger motorbus and motor truck as such, when conducted under proper conditions and in keeping with public welfare and benefit. He declared, however, there is need for serious consideration whether such competition is being developed under conditions that are unfair to the railroads, because either the outright or obscure aid of government policy is the deciding economic factor in that competition.

### Would Investigate Bus Traffic

Railroad rights of way, he declared, represent tremendous capital investments, on which the railroads have also heavy current costs to meet. "They pay every day a million dollars in taxes and most of this is on their rights of way," he said. "Also they spend daily over two million dollars additional for the proper maintenance of way." He asserted that the motorbuses have not had to pay for their rights of way in any sense that the railroads paid for theirs.

"They have simply taken possession of public highways built by public funds, both state and national," he continued, "and they have extensively made those highways vastly less comfortable, less safe and less serviceable for private motorists and otherwise as are contributing chiefly to their creation and maintenance."

Mr. Stephenson declared that all these matters should be thoroughly inquired into by competent public bodies, both state and national, with a view of determining the equities and basic public economic interests involved, "particularly in respect to their effects upon the nation's railroads."

"I venture to say," he added, "that such inquiries would show whether it is to the public interest to let things remain as they are, whether the situation calls for a new basis of motorbus and truck taxes to satisfy the equities of the case or whether it would call for such drastic action as the exclusion of this traffic from our public general highways, and the requirement that, even as the railways, it provide as a part of its own private capital investment its own rights of way and for its own maintenance of way out of operating income."

## Santo Domingo



Remains of a Ceiba Tree in Santo Domingo to Which Columbus Moored His Ships.

(Prepared by National Geographic Society, Washington, D. C.)—WNU Service.

**T**HE dark, unmarked Santo Domingo harbor into which Columbus' three diminutive vessels sailed in 1492 soon will be lighted by a new lighthouse, a memorial to the Great Discoverer. Plans have already been chosen from those submitted by architects representing the United States and several countries of Europe.

Although now modernized, Santo Domingo still retains much of its early Spanish aspect. "Oldest in the New world" and "First to be established by white men in America" are phrases of inevitable recurrence in any descriptive list of the historic buildings and ruins of this ancient city. The early colonists built for the centuries, and many edifices dating from the sixteenth century are still in use.

The ministry of foreign affairs and other departments of the Dominican government occupy the old colonial palace of government—a spacious structure that was venerable long before the first buildings rose at Jamestown, Va.

Surmounting a bluff which commands the entrance to the inner harbor rises the ancient Tower of Homage. Unshaken through the centuries this pioneer outpost of New world conquest seems to dream of the golden age when it guarded the key city of the far-flung empire of Spain in America.

In the tower is a small barred aperture that sometimes is pointed out as the window of the cell in which Columbus was imprisoned before being sent back to Spain in chains—a statement that cannot be true, since Columbus' imprisonment took place in 1500, when the city was situated on the opposite bank of the Ozama river. The same hurricane that destroyed the home-bound fleet in 1502 so damaged the city that it was decided to rebuild it on the higher western side of the Ozama, the site it now occupies.

### House of the Admiral

Of the buildings now in ruins one of the most interesting is the castle of Diego Colon or House of the Admiral, the ancestral home of the Columbus family in America. Its construction was begun in 1500, when Diego Columbus, second admiral and son of the discoverer, came to Santo Domingo as governor of the colony. The house was occupied by members of the Columbus family until the death of another Diego, great-grandson of the discoverer and last of the direct line of his male descendants.

Although the House of the Admiral has been allowed to fall into ruins, with its destruction further hastened by the vandalism of treasure-seekers, its historic walls will bear mute testimony to its former magnificence. It was to this and other pretentious mansions of the city that the chronicler Oviedo referred when in a letter to the king of Spain he said that his Royal Highness often lodged in palaces far inferior to those of Santo Domingo, and added that he considered the city superior to any in Spain in its location, beauty and arrangement.

Fifty years after its founding, Santo Domingo had passed the apex of its first glory. Interest in the new colony was eclipsed by desire for further conquest, and its meteoric rise was almost equalled by the rapidity of its decline. From a goal, Santo Domingo became a base for expeditions farther westward. Cortez, Pizarro and Ponce de Leon were only a few of the gentlemen adventurers who sailed out of the mouth of the Ozama with their eyes strained for the glitter of gold on the western horizon.

By 1586 the power of Santo Domingo had so waned that the capital fell an easy prey to Sir Francis Drake, and a ransom was extorted by methods smacking of the torture chamber. Each day proscribed buildings were demolished until about a third of the city lay in ruins. Then the citizens managed to scrape together a going-away present amounting to about \$30,000 with which Drake took his leave after hanging a few prominent citizens by way of valediction.

Of less stern caliber were the warriors of the Admiral Penn expedition which in 1655 was sent to the island by Cromwell with the object of gaining permanent possession of the colony. Landing on the coast west of Santo Domingo city, the English forces were met by determined resistance in their advance on the capital and were soon glad to leave Hispaniola

and regain some prestige by seizing the more defenseless colony of Jamaica.

### "Battle of the Crabs."

According to legend, the defenders of Santo Domingo were aided by strange allies, and along the beach near Jaina the site of the traditional "battle of crabs" is still pointed out. The story runs that the invading forces encamped here one night. With their nerves on edge from constant ambushes and surprise attacks, they mistook the clattering of the large number of land crabs hereabout for the hoof-beats of charging cavalry, and they were soon retreating pell-mell.

Between 1730 and 1740 the population of the capital fell to about five hundred, but fifty years later it was again riding on one of its high tides of greatness as a Spanish colonial city, only to be overtaken within a decade by another period of adversity.

Now, after more than four centuries of varying fortunes and despite siege, earthquake, and tropical hurricane, the brave old city stands defiantly at the mouth of the Ozama—a little bewildered, perhaps, as if undecided whether definitely to capitulate to the march of modern progress or wait patiently a little longer for galleons long overdue.

In the last thirty years the capital city has spread far beyond the limits of the old town.

One with a romantic turn of mind could wish that the streets in the old part of the city had been allowed to retain their original names, but these have nearly all been rechristened in honor of men and dates prominent in the history of the Republic. Of the old names, only the "Street of Isabel the Catholic" remains, and much of its romance is dispelled by the traffic policemen who briskly "shoo" automobiles along the narrow thoroughfares. Visitors may hunt a long time for a horse-drawn coche in which to drive about and view the city, but when one of the few left in commission finally is tracked down, they lack the moral courage to charter it for fear of being thought eccentric—or worse. It just isn't done any more.

### Ashes of Columbus There.

The chief pride of the Dominicans is their faith that the ashes of Christopher Columbus rest within their cathedral at Santo Domingo. In 1795 Spain, having ceded Santo Domingo to the French, removed what its officials believed to be the ashes of the Great Discoverer to Havana. Upon the evacuation of Cuba by Spain in 1898, the Spanish government moved the Havana remains to Seville, Spain.

But in 1877, while the Santo Domingo cathedral was being remodeled, another vault containing a leaden casket was found. As soon as the casket surface appeared everything was sealed, and in the afternoon the president and his cabinet, the members of the diplomatic corps, the bishops and Apostolic delegate, and many others assembled to witness the completion of the excavation and the opening of the casket.

Outside and inside were found inscriptions which bear alike the name and the titles of Christopher Columbus. All present, including even the Spanish consul, joined in a notarial affidavit of the circumstances of the opening of the vault and casket and the description of their contents.

The late American minister, Thomas C. Dawson, pronounced the evidence complete, and the late American secretary of state, Philander C. Knox, on his visit to Santo Domingo in 1912, declared that any impartial court would sustain the contention that all that is mortal of the Founder of the New World rests within the Cathedral at Santo Domingo. Charles G. Dawes, United States ambassador to Great Britain, while in Santo Domingo in 1929 as the head of a commission to work out a budget system for the Dominican government, made a study of the evidence and reached the same conclusion as Minister Dawson and Secretary Knox.

One of the most tragic experiences in the history of Santo Domingo occurred in the afternoon of September 3, 1930, when a hurricane swept over the capital. Outside the walls of the stricken city the devastation was practically complete; inside the walls 70 per cent of the buildings were damaged and practically all of the 4,000 smaller homes were destroyed. Upward of two thousand people were killed and six thousand were injured.

## FARM NOTES.

—During 1932 thousands of families again will rely on the home garden to save them money and at the same time provide them with healthful food. Now is the time to plan the 1932 garden on paper in order to purchase seed more efficiently. Arrange for inter-cropping and succession planting in the small garden.

—When the ground has frozen several inches straw can be applied as a mulch to the strawberry bed for best results. The rows should be covered with 5 or 6 inches of wheat straw as soon as the first real cold weather occurs. Two to three tons of straw per acre should be sufficient to give the plants proper insulation against alternate freezing and thawing during the winter.

—This is a good time to reconstruct the producing units on the farm. The woodlot is included in this group. To sell the prize trees when prices are low is destructive. To remove the weeds and culls from the woods is constructive work. This will aid in developing more and better timber for the time when it will sell at a premium.

—It is not advisable to hold eggs for hatching purposes more than 10 days before putting them in the incubator.

—Sixty-six management demonstrations conducted in as many communities under the supervision of the State College extension service during the past year brought better methods of handling sheep to the attention of 1506 Pennsylvania farmers.

—San Juan National Forest officials have discovered a new enemy of trees—porcupines.

The animals rub trees with their sharp quills, stripping a ring round them and causing them to "spike top," or die at the top first.

Forest Supervisor Andrew Hutton estimated porcupines have caused as much damage to the timber during the last few years as that caused by fire.

A campaign against them, he said, would be made this winter.

—Treated with reasonable care the farm woodlot is a perpetual sort of thing.

Constant replacement takes place among the trees composing the woodlot. As the old trees drop out or yield their ripe products of wood and timber, young ones spring up to take their places.

First of all, keep out fire. This destructive demon robs the woods of living trees and destroys their power of regeneration.

Next, keep out the livestock. Grazing animals will thrive better in a good open pasture where meat and milk-making grasses grow. Then, too, cattle get little nourishment in the woods and eventually will eliminate natural regeneration of the trees.

Good woodland management also directs natural thinning by using the ax to eliminate those trees which do not have the inherent characteristics necessary for the making of valuable trees. The aim is to produce 100 trees to the acre which will be ideal in shape, quality and kind for either use or sale. The favored trees are those which are straight, tall, sound, and of the kind growing the fastest and being the most valuable for use.

As the farm woodland trees grow in size, the improvement operations repeated every 10 years gradually eliminate all but the choicest ones. To balance the improvement work in an average farm woodlot so that it can be fitted into the farm work schedule without interfering with other duties, many owners thin one-tenth of their wooded acreage each winter. The sale of wood and timber pays for the work.

—Dairymen can cut feed costs by substituting wheat, barley, and oats for corn and hominy feed in dairy rations, at present prices, and by feeding a grain mixture with a protein content that corresponds to the roughage fed, advises Prof. F. B. Morrison, head of the department of animal husbandry at the New York State College of Agriculture. He suggests formulas for use with various types of roughage for feeding dairy cows.

In these formulas wheat or barley may be used, depending on the local prices. For dairy cows these grains have substantially the same value, ton for ton. Since wheat is a heavy, concentrated feed, it is best not to use more than 600 pounds of ground wheat per ton of dairy feed. Also some bulky feed, like oats or wheat bran, should be included in the mixture.

Ground rye may be substituted for wheat or barley in these formulas. Since rye is usually not quite as palatable as these grains, it is best not to use more than 300 to 500 pounds of rye per ton of feed.

When little or no legume hay is used, feed a 24 per cent total protein mixture, as: 300 pounds of ground wheat or barley; 300 pounds of ground oats; 350 pounds of wheat bran; 350 pounds of gluten feed; 400 pounds of cottonseed meal; 200 pounds of linseed meal, and 100 pounds of gluten meal.

With mixed clover and timothy hay and corn silage use a 20 per cent total protein feed, as: 600 pounds of ground wheat or barley; 600 pounds of ground oats; 300 pounds of gluten feed; 200 pounds of linseed meal; 200 pounds of soy bean meal or gluten meal. With corn silage and corn silage only 18 per cent total protein is needed in the grain mixture, made as follows: 700 pounds of barley or wheat; 700 pounds of oats; 200 pounds of gluten feed; 200 pounds of linseed meal, and 200 pounds of cottonseed meal.

## FRENCH CATCH TROUT IN SWIMMING POOL.

Trout fishing in a swimming pool is the latest winter indoor sport in Paris.

You can fish all day for 12 cents and then put your catch on the scales and pay for it at the current market rate. Just for convenience, there is a bar across one end of the hall. Isaac Walton never enjoyed such sport.

The pool is stocked every morning, but the fish are never fed, thus making them ravenously hungry and easy prey. The pool is stocked with trout, carp, pike and eels.

There is only one rule and that is: "Catchers, keepers." Floor-walkers keep moving around to see that the fishermen pay for their sport. It is forbidden to catch a dozen fish and then throw them back in to avoid buying them.

Since there are no minnows, but only full-sized fish of a half pound or more, the place does a thriving business as a fish market. It is not uncommon for a fisherman to leave with a string of a dozen bass.

Landlady: "There is a hole burnt in this sofa cover, and I expect you to pay for it."

New Lodger: "Certainly not. I don't smoke, so you can't blame me for it."

Landlady: "What impudence! You are the first lodger for three years who has refused to pay for that hole!"

## Home Each Week

**I**T was lonely on the farm now that winter had settled in. Mrs. Kemp would sometimes catch herself listening for footsteps. But no one came.

Tom was back at his job in town. Jim was in college. And Sue, with her children, couldn't come home very often.

Then one evening the telephone rang. It was Jim. "Just wanted to chat," he told his Mother. "How're you and Dad?" For several minutes family news and happy confidences flew back and forth between mother and son.

The conversation ended, Mrs. Kemp turned from the telephone with eyes shining. "Dad," she exclaimed, "Jim gave me an idea! Let's call up Tom and Sue. From now on I'm going to visit the children by telephone and not sit here alone!"

The modern farm home has a telephone



Farm 3

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