

Synthetic Rocks Produced in Day

Laboratory Reproductions Equal Earth's Finest Work—Use Nature's Processes.

Washington.—What is claimed to be the latest wonder of modern science is the man-made reproduction of synthetic minerals, to be followed in a few months by synthetic rocks. The reproductions are said to equal mother earth's finest workmanship and to require less than a millipth part of the estimated time needed by her.

They are the fruits of years of patient research and laborious hours in the laboratory; of hazardous experiments with powerful machines capable of exerting pressure of 200,000 pounds to the square inch—all carried to their present stage of success at the geophysical laboratory of the Carnegie institute of Washington.

To manufacture minerals and rocks science is simply duplicating nature's processes, but is accomplishing the same results, on a much smaller scale, of course, in a single working day. Nature took bewildering ages and smelted her wonders in the vast forges of the earth; science is fabricating its copies in a few highly polished and innocent-looking little steel "bombs."

Some Minerals Used. Mother earth manufactured her minerals and rocks, science has learned, by means of extreme heat and extreme pressure. First the minerals known to be contained in the mineral under experiment are poured into a tiny tube made of pure platinum, one end of which is sealed by solid gold. The opposite end is then sealed and this container placed in the "bomb."

The bomb is made of the finest steel obtainable. Its aperture is small and its walls extremely thick in comparison, all making it capable of withstanding the terrific test it is about to undergo. A small electric furnace made of the same, although impure, constituents of rubies, is placed in the "bomb" and the apparatus sealed. Then it is ready for the ordeal of searing heat and gigantic pressures.

Both are applied gradually, the heat sometimes being permitted to register as high as 2,500 degrees Fahrenheit and the pressure as much as 60,000 pounds to the square inch. Gradually the gauges creep up, and up and up. Suddenly they relax and the pressure drops. The watchful attendants know "something" has happened inside the bomb and the heat and pressure are quickly turned off. When the platinum container is cut open mineral particles or rocks, whichever the case may be, are found inside.

Rocks That Will Bend. Not only are these minerals the replicas of nature's own products, but in many instances purer—completely free from the discoloring impurities that are found in the natural originals. For instance the jadeite made at the geophysical laboratory of the Carnegie institute is light yellow in color. Natural jade is green. The green coloring, however, is supplied by an impurity, and the synthetic jade readily could be made the same shade by including the impurity in its constituents.

Science has gone nature one better in its experiments. It has discovered that by injecting more water into the rocks it can make them susceptible to bending—gelatin-like. If still more water is forced into them under heat and pressure they are quite readily reduced to liquid—liquid rock, in fact. But when the uninitiated visitor to the laboratory opens his eyes in wonder at such spectacles, the scientists simply laugh and quite learnedly say: "Why, there's nothing so remarkable about that."

Able to Compress Water. Tests with high pressure have also disproved some old theories. The first is that water cannot be compressed. Science has discovered that water can not only be compressed, but that under

a pressure of 130,000 pounds to the square inch it freezes into a cake of ice so thickly condensed that it sinks like rock in water. Mercury, too—the "unfreezable" mineral used in thermometers—can be frozen under a pressure of 170,000 pounds to the square inch.

Science has yet to learn, however, to duplicate the wonders of nature at the same cost before it can compete with her in the commercial world. Mother earth can do her work so vastly cheaper in that respect. For instance, if you were determined to have a synthetic tombstone, science could probably make you a granite one—but it would cost something like a billion dollars. Fortunes spent in research and past experiments must of course be figured in "cost production." The important fact, however, is that man can now make granite.

Of far greater value for the present are the laboratory's contributions to the study of seismology. Its experiments have resulted in scientists being able to determine accurately the flexibility of the various kinds of rocks and hence the speed with which earthquake waves pass through each kind. Thus, by timing the passage of an earthquake wave at different stations it is now possible for the experts to say with assurance of accuracy just what kind of rocks lie buried far beyond the reach of man in the respective areas.

U. S. Savants Win Calendar Row

Earliest Date in the New World History Is August 6, 613 B. C.

Cambridge, Mass.—The earliest dates in New World history are August 6, 613 B. C., and December 10, 580 B. C., by the present system of marking time, the Peabody Museum of Harvard university announced in making public the final solution of the chronology of Mayan dates.

This solution, made possible by the studies of Dr. H. J. Shinden of the museum, is hailed as a distinct victory for the American school of research in the records of the ancient inhabitants of Central America, since it follows the lines of approach laid out by several scientists of the United States in contradistinction to the basic theories of the German, French and Spanish savants.

"These positive and perfectly defined points in chronology probably fell within the working years of one of the world's first scientists, the unknown mathematical and astronomical genius who invented the Central American calendar and established the Mayan era," the museum's announcement says.

Spaniards Destroyed Books. "Actually the numerous dates on the monuments of the great Mayan civilization in Yucatan and adjacent territory are counted from a beginning day which corresponds to October 14, 373 B. C., but this beginning day was reached by putting seven cycles of 144,000 days each for the past of the world before the historical first day of the numerical count.

"This historical first day was August 6, 613 B. C. At this time a numerical record of elapsed days was begun, and in the years that followed various astronomical events were put down as they happened, a procedure which soon gave a picture of time adequate for the perfection of a calendar machine.

"These monuments are between four and five miles apart and a person standing before the eastern one, or at some spot in the city, on the line connecting the two monuments, would see the sun set directly behind the western monument two times in the course of the year, namely, April 9 and September 2 in the average Gregorian year.

"Both of these dates are recorded at Copan on various monuments and they appear prominently at other cities. They are connected with calculations leading directly to the days of the equinoxes and solstices. The astronomical congress at Copan celebrated a common acceptance of certain features of the calendar and a shift in the base line which involved a concept of relativity too complicated for easy explanation.

"The Mayan year was of 365 days, and while the Mayas did not interpolate leap year days, they knew just how many to allow for the accumulating differences for any given number of years."

The legend says that the remedy was successful. "Do you really believe such was the case?" a ranking British officer asked of the old sexton the other day. "With a sad smile the latter replied: 'Hardly; otherwise, I am certain we should have enough of the precious metal in Germany to set up a gold statue of a British soldier somewhere in Cologne.'"

Self-adjusting electrodes are a feature of a new electric furnace.

HUNDREDS DIED HERE



Remains of a 12-story tower in a Tokyo amusement park which collapsed in the earthquake, killing about 700 persons.

Civil War Vet Has 77 Great-Grandchildren

Syracuse.—Perry Soles Cobb, of Lyndon, Onondaga county, celebrated his ninety-sixth birthday at his home at Adams recently, at a party given by his daughter to his 151 descendants. Mr. Cobb, the oldest Civil War veteran living in Jefferson county, boasts of 11 children, 63 grandchildren, 71 great-grandchildren and six great-great-grandchildren.

Her Presence of Mind

By CLARISSA MACKIE

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The chimneys of the old Lange house were visible between the towering trees that shaded the place. For many years no one of that distinguished name had occupied the place. Anthony's parents were dead, his sisters had married and moved away, and the homestead, left to the only son, Anthony, had been closed for ten years while the owner finished his medical studies in Europe. The war had interrupted, and he had brought new honors to the family name, but had remained overseas long after peace had been declared. Rumor had it that young Doctor Lange was coming home, so each day when Mary Bell went past in her tidy little sport car she stretched her pretty neck to see if smoke came from the ancestral chimneys of her old playmate—Tony Lange.

"As if any sensible man would build a fire on a midsummer day!" she scoffed again as she slowed down and looked through the open gate. "The gate is open—don't get excited, Mary Bell—it is probably nobody but Amos White raking the lawn—but there is a man around the shrubbery and I don't see Amos mowing grass! It must be a tramp or a burglar."

If Mary's heart skipped a beat she would not have guessed it, for she abruptly turned the tidy car into the frowning gateway of Lange House and crept up the leaf-strewn avenue. Presently she turned on to the unkempt lawn that Amos White labored in vain to keep in order.

The car had almost reached the side door of the house when Mary had a good look at a roughly-dressed form bent over some task at the door. Mary correctly guessed that he was trying to enter the house by force.

She whipped out a small revolver from his case at the side of her seat. "Hold up your hands, please," she said politely.

The man whirled about and stared at her. He was a very dirty-looking man, with a villainous scowl under the visor of an old cap.

"Hands up!" repeated the pretty maid in the car.

"Nothing doing, madam," said the interloper curtly.

"Then I shall shoot."

"What for? Is this your house?"

"It is the house of one of my friends."

"That's funny," he said, throwing off his cap and coming to sit on the steps of the porch. He smiled in a most appealing manner.

But Mary Bell did not waver. She still held the weapon, for which she had a tremendous respect, aimed at the intruder, and was rather wishing he would throw up his hands in the orthodox manner of Wild West motion picture villains and back timidly out of the vicinity.

This villain did nothing of the sort. He simply bent his head and rumbled his dark hair with blackened hands. Mary knew he was laughing at her. Such impertinence!

The little car backed indignantly on to the lawn.

The "burglar" came down the steps with a very sheepish air and bowed humbly. "Do you need any help, ma'am?" he inquired.

Mary grew pink. "I am going after help," she said distinctly. "I am going after the constable."

"Why?"

"Because you are trying to break into that house—you are, aren't you?"

"Yes, it's my—" but his words were drowned in an impertinent little screech from the horn as the car tore its way across the tangled grass and weeds. The would-be burglar stared after her a moment, then slapped his knee, laughed softly, and went back to the door which he soon opened with the aid of a crowbar he had found in the woodshed.

Once within the little entry he closed the door softly and stood for a moment listening. He would listen in vain, for never again would the voices of dead and gone Langes echo through the house. Standing for a moment with bent head he pressed the back of his hand to his eyes and then with a quick straightening of his shoulders he opened a door in front of him that led into the dining room. Here he lingered, looking at the pictures and furniture, peering through the closed shutters where sunshine tried to pierce the gloom. Softly he tiptoed from room to room, mounted the stairs and repeated the same examination of every room in the house. At last he found a room where a wardrobe disclosed some clothing—he rummaged drawers and closets. Then he entered the bathroom and turned on the shower.

Half an hour later the little car of Mary Bell whirled up to the front door. Beside her sat the constable, his official star gleaming with menacing power. He looked truculently around.

"Where is he?" he wanted to know. "I left him at the side steps—he was jimmying the door." Mary Bell looked pale, but determined. Once more she had exerted what she called presence of mind, but which her small brother paraphrased into "absence of sense."

"I kinda wish you hadn't told him you was going after me," objected Constable Smith peevishly. "Of course, the scamp's run away by this time."

"He didn't look like the kind who run for a woman," objected Mary. "Some hard character, I reckon," chuckled the constable as he tramped toward the side door.

In the stillness that followed Mary Bell could hear the beating of her own brave heart. Suppose the man, desperate, hidden perhaps inside the house, should shoot at her for betraying his whereabouts to the constable.

"I am not afraid!" she said aloud, and just then the front door opened noiselessly and the object of her thoughts appeared—or rather perhaps it was because the newcomer was so different from the soiled and desperate burglar she had encountered.

They stared at each other.

The man was young and handsome, with a very pleasant smile and a very determined look about his mouth at the same time—that was what Mary Bell was thinking. His nice hair was damp as if newly washed, and his clean-shaven face was that of her old playmate, Tony Lange, grown older—and somehow nicer! Then, too, he was wearing tennis clothes of snowy white from head to foot. Mary Bell saw this all at a glance and in the same instant she cried out involuntarily:

"Oh! I thought it was the burglar!"

"Thanks for the compliment, Mary Bell, but that's scarcely a welcome home to an old friend!"

"Tony—or, Anthony Lange?" she cried.

"Tony Lange—or nothing at all—evermore," he said gayly as he shook hands with her.

"Oh, well, then Tony—we are so glad to see you—and so proud of all the glory you gained in the war—and are you going to stay home and doctor all the folks hereabouts?" she asked in a breath.

"Perhaps," he promised guardedly. "How is your mother and the rest of the family?"

"Very well, indeed—and who is this?" he asked curiously as the constable ambled around the house to find Mary Bell in friendly conversation with an immaculately dressed young man in tennis flannels.

Constable Smith smiled sourly. "I been all through the house, Miss Mary, and that feller's got clean away!"

"Who's got away?" demanded Doctor Lange.

"The burglar Miss Mary caught—I just wish that young squirt would come home and take care of his house!"

"He's here now, and much obliged to you, constable," grinned Anthony.

"Well, I'll be swinged! I'd never known you, Tony Lange, or is it doc?" asked the man curiously.

"Oh, it's doc to my old friends," said the war hero as he shook hands, leaving something in the official's palm that turned his rancor into joy. "Thank you for taking care of my house."

"Twa'n't me—'twas Mary Bell's presence of mind," twittered the constable as he walked down the drive.

"I'm sorry about the burglar—I hope he didn't steal anything—but he was desperate looking," apologized Mary Bell.

For reply Doctor Lange raised his hands above his head. He twisted his face into a villainous scowl.

Mary Bell rocked with laughter. "So it was you?"

"Of course, I had been under my car away down the road and ruined all my clothes. I found the old cap in the garage when I arrived, lost my key through a crack in the floor of the porch, groveled for it, gave it up, thought you were a lady hand at first, then recognized you for—never mind what—and broke into the house, found my old room, got into some out-of-date clothes, had a tub first, of course, and here I am, and welcome to the home of the Langes."

"Thank you, Tony," she said sweetly. "And now you are coming home with me to dinner—and everything!"

As the friendly little car took the doctor into its embrace it started off with a gentle little purring sound, and afterward when the Lange place was restored, it was the same little car that took them honeymooning.

And no one save Mary Bell and her husband ever knew what became of that burglar!

Got 'Em Trained. Mrs. A.—"And you have had the same girl for two years?" Mrs. B.—"Yes; she says she doesn't believe in changing after she has gone to the trouble of teaching a family her ways."—Boston Transcript.

HOLD HIGH REGARD FOR BEARDS

Turks and Arabs Still Like Them Because the Prophet Mahomet Wore One.

The Turks and Arabs still regard their beards highly because the prophet Mahomet wore one. Before combing his beard a Turk spreads a cloth to catch any hairs that may fall. After the hairs are collected they are handled carefully and used as a solemn offering to the dead. The Moor's strongest feeling is expressed when he promises "by his beard." He means that he will keep his word. Peter the Great of Russia didn't like beards, so he placed a tax on them. Many of his subjects were too poor to pay the tax and had to shave their beards off. But they saved the hair and had it buried with them.

At one time only kings and nobles were allowed to wear beards. The common people and the servants had to shave, to show that they were subject to the king and those above them. In the Middle Ages, when three hairs

ROUND WORLD IN AN AUTOMOBILE



The American Captain Wanderweil, his secretary and two chauffeurs, are making a trip around the world in two autos. The trip began on Sept. 22, 1919, from Atlanta, Ga. Captain Wanderweil, who has been around 23 lands, is now in Berlin. He is said to have made a huge bet in America that he would go all round the world without taking a penny of money with him or having any sent from home. He also does not accept any money from any auto manufacturers. He, with his companions, is to work his way round the globe.

SOME CAUSES FOR STARTER TROUBLE

In Case of Failure Battery Is First Thing to Suspect—Test Acid Solution.

(By ERWIN GREER, President Greer College of Automotive Engineering, Chicago.)

To every motorist sooner or later there comes the unpleasant experience of stepping on the starter button and instead of the merry whirr of turning gears, being greeted by stony silence. It is scarcely remarkable that this occurs, indeed the wonder is that the starter holds up as well as it does under the abuse that it receives at the hands of the average car owner.

The starter system embodies the following units: A storage battery, the cables that connect the battery with the rest of the system, a switch for bringing the starter into action and, as a general thing, the frame of the car, which is used to return the current to the battery after it has turned over the engine.

Suspect Battery First. In cases of starter failure the first thing to suspect is the battery, which supplies the current that operates the starter. Once a week during the active running season the battery must be filled to level with distilled water. The acid solution should be tested at these times with a hydrometer, showing the specific gravity of the solution. If this has fallen below 1,200 the battery is away below charge and must be recharged without delay. If the battery is permitted to become dry or to fall so low in charge that it cannot turn over the starter the cause of the failure is at once revealed.

The next things to suspect are the cables that connect the battery with the starter by way of the switch. While the trouble here is not so frequent, nevertheless insulation may wear through, setting up shorts that drain the battery and prevent the starter from doing its work. Occasionally, also, the switch goes out of business, but if the battery is proved to have adequate current and the cables are all right, examine the switch.

Lack of Lubrication. Sometimes the starter motor itself goes out of business through mechanical failure or lack of lubrication. The starting motor is generally lubricated from the engine on one end and by a small oil hole in the other. The engine lubrication is automatic, but the oil hole requires a drop of oil every 500 miles of running.

The brushes and commutator of the starting motor do not need oil; in fact, if oil gets on these parts it is likely to stop the motor from operating. In this case the oil may be cleaned off by holding a small piece of fine sandpaper against the commutator while the motor is running.

From all this the car owner will get the obvious lesson that troubles in the starting system are best cured by reasonable care beforehand. Keep the battery up to its work, watch the cables for broken insulation. Give the starting motor the drop of oil it needs, and the starter will continue to whirr obediently to your foot pressure while the crank rusts in idleness under the back seat.

STEERING ARMS CAUSE WEAR

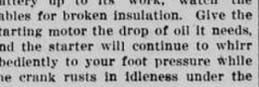
One Reason Is That Wheels Are Not True, Especially When the Car Is Turned.

One reason for unusual wear on front tires, due to the wheels not being true, especially when the car is turned, is because the steering arms, extending from knuckle to the rod, have been bent from a hard strain exerted on them by the wheels hitting a rut, bump or flaw in the road diagonally, or by some object striking the arms themselves. Naturally, the wheels will not both head in the same direction when one or both of these arms are sprung.

GETTING AUTO OUT OF MUD

Device Made of Plank Four Feet Long and One Foot Wide Is Useful in Emergency.

The Farm Journal in illustrating and describing a device to get a car out of mud hole, the invention of Robert H. Noll of Ohio, says: "A device for getting the car out of the mud under its own power can



Getting Car Out of Mud Hole.

TROUBLE LAMP OF ODD TYPE

So Constructed That It Can Be Made to Adhere to Any Iron Part of Automobile.

No automobilist likes to be without a trouble lamp, and often when he has one he finds it difficult to place it where it will afford illumination at the seat of the trouble while his hands are occupied with tools. The newest type of trouble lamp has an electro-magnet in the base, which is energized when the lamp is lighted, making it possible to stick it to any of the iron parts of the car.

Starting Made Easier

Throw out the clutch when starting. Motor has to turn over the clutch and countershaft gears, besides the engine itself. It is a heavy strain on the battery.

AUTOMOBILE NEWS

Don't allow your car to be washed by inexperienced or unscrupulous washers, who use coal oil, gasoline or lye soaps in the operation. In order to reduce the wear on the coil vibrator points with battery ignition, reverse the direction of flow of current occasionally. Don't adjust the carburetor until the engine has warmed up. That time you will be near a repair shop where the work can be done properly.

Fights Railroads and Routs a Mayor



Miss Helen Schultz, twenty-four, of Mason City, Iowa, who operates 24 bus lines, is fighting single-handed the efforts of four powerful railroads to have her license revoked. In an altercation with the mayor of Cedar Falls, Iowa, over a local permit, she called the latter an "old fool," and then obtained a \$1,500 judgment against him for false arrest.

Cathedral in Cologne Draws British Soldiers

Cologne.—British officers and soldiers of the forces occupying this city never tire of visiting its majestic cathedral.

A life size mouse of solid gold under an inverted crystal bowl set upon a marble table in one of the chapels invariably causes much curiosity and inquiries as to the cause of the little golden rodent's presence are frequent. It is told that some hundreds of

years ago the cathedral was infested with mice which were responsible for much damage to the paintings, sacerdotal costumes and other costly silk ornaments. All efforts to rid the cathedral of the plague had proved failures until some one suggested that the presence of a mouse of gold as a permanent fixture would prove effective in frightening the live ones away.