

Saturday on the Rocks

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deposit had been under the sea millions of prehistoric years, and that it is probably 400 to 500 million years since the calcified clams were dug out had formed a great clam bed right here, in the Silurian period.

"THIS WAS A LONG before the earth had any vegetation except aquatic algae," he said. "The impressions you find in the rock look like leaves are really from coral. It took an enormous number of millions of years to make all this lime."

As he talked, Bill was unable to dig out previous specimens found by children who were unable to pry them loose.

"That's a dandy," I heard him tell a little girl as he handed her a big bivalve, "you can be proud of that."

At this point I saw Mr. Nickell high on the rock pile surrounded by another group of children. Scrambling nearer, I heard him say that this quarry had been in operation from 40 to 60 years, that he has been coming here for 20 years, that there were eight or ten such quarries in the area, and that "every time they blast the walls more fossils come to light."

"Aren't there any quarries like this in Michigan?" a boy asked.

"YES," MR. NICKELL replied, "but most of them are covered with a heavy glacial drift and we can't get at them. This big lime bed was formerly at the bottom of a huge ocean that extended from the Arctic to the Gulf of Mexico and covered all the great plains between the Rockies and the Alleghenies."

"We call this limestone but it's actually dolomite, because it contains 55 percent calcium carbonate and 45 percent magnesium, and when the magnesium rises above 40 degrees, limestone becomes dolomite. The material here could be a source of magnesium, but in these Ohio quarries the lime is used for plaster and mortars."

"Mr. Nickell—Mr. Nickell," a child called from a nearby rock, "found something strange!" Piped Piper Nickell went over, pick in hand, followed by the other children.

"It looks like a snail," the discoverer said.

"IT'S A TYPE of turret-shaped gastropod," Mr. Nickell explained. "And that was a very early type of snail. You've got a beauty there," and he fell to work digging it out without breakage—a delicate operation.

"I prized item on all sides was a shiny brown mineral that had the lustre and color of resin. It's called a 'resinous nodule' but actually it's sphalerite or zinc sulphide," Mr. Nickell said, "a mineral often found in limestone and dolomite."

Meanwhile many large bivalve clam impressions were being dug out in whole or in part. Mr. Nickell explained that these are Megalonus Canadensis, because they were first found in Guelph, Ontario, but that they have also been found in Ohio, Indiana, Wisconsin and Alaska—"quite a range." Almost everyone took home one or more Megalonus.

AT 3:30 PEOPLE began trudging toward their cars, carrying bags and boxes filled with fossils and I, innocently enough, thought the day was over and we were going home. How wrong I was! We stopped at another, smaller, quarry, and the kids leaped from the cars and made for new, unexplored rockpiles as eagerly as if the day had just begun.

A few days later I had an opportunity to talk with Mr. Nickell at the Science Institute about his

theories of education with particular reference to his nature expeditions.

"When children are young, it is not so important that they learn accurate facts," he said, "as that their curiosity be aroused to the point where they learn to observe—*to SEE*."

"When they collect fossils they learn to see, and they can't be expected to pin everything down and take in all that is explained to them. In developing an interest in collecting, they become aware of the general aspects of the total scene—the approximate age of the sea bed, the limitless years it takes for crustaceans to become lime of dolomite, and so on."

"WE TRY TO make these exper-

ditions into a mind-developing program, with facts subsidiary to the excitement of exploration and discovery. As he begins to relate what he sees to other things he sees, the child begins to develop an organized mind, which grows as his knowledge increases."

"You know," he continued, lighting another cigarette, "I have proved to my own satisfaction at least, that a child or an adult does his best work when he is having fun. The thing he is doing must be pleasant if his interest is to be engaged—and having fun gives a tremendous impetus to go ahead. How many of these children become geologists or paleontologists doesn't matter. The ability to observe keenly is important in many professions."

"The excitement to be found in nature cannot be taught in a laboratory or even a museum—the pleasures of discovery must come nat-

Curfew Ordinance Snarles Six Youths; Hunting Ban, 15

TROY — During August, September and October, 151 traffic violators appeared in justice court, according to Police Chief David E. Grattop.

Speeding and driving too fast for road and traffic conditions were the main reasons for motorists receiving tickets.

The new curfew law, Ordinance 13, passed Aug. 20, brought six parents into court for their children's failure to observe the rule.

The ordinance rules that youths under 17 be off the streets nightly by 10:30 unless accompanied by a parent or unless attending a church or school function. Permits are required by children who want to stay out after 10:30 and parents must send the police department a letter approving the permit.

During October which saw the opening of small game hunting, 16 persons were arrested for violating the No Hunting with Firearms ordinance. Hunters' guns were confiscated, some for the duration of the season and some permanently, said Grattop.

Justice Charles H. Losey said that his court collected fines, costs and fees during August, September and October totalling \$3,673.30



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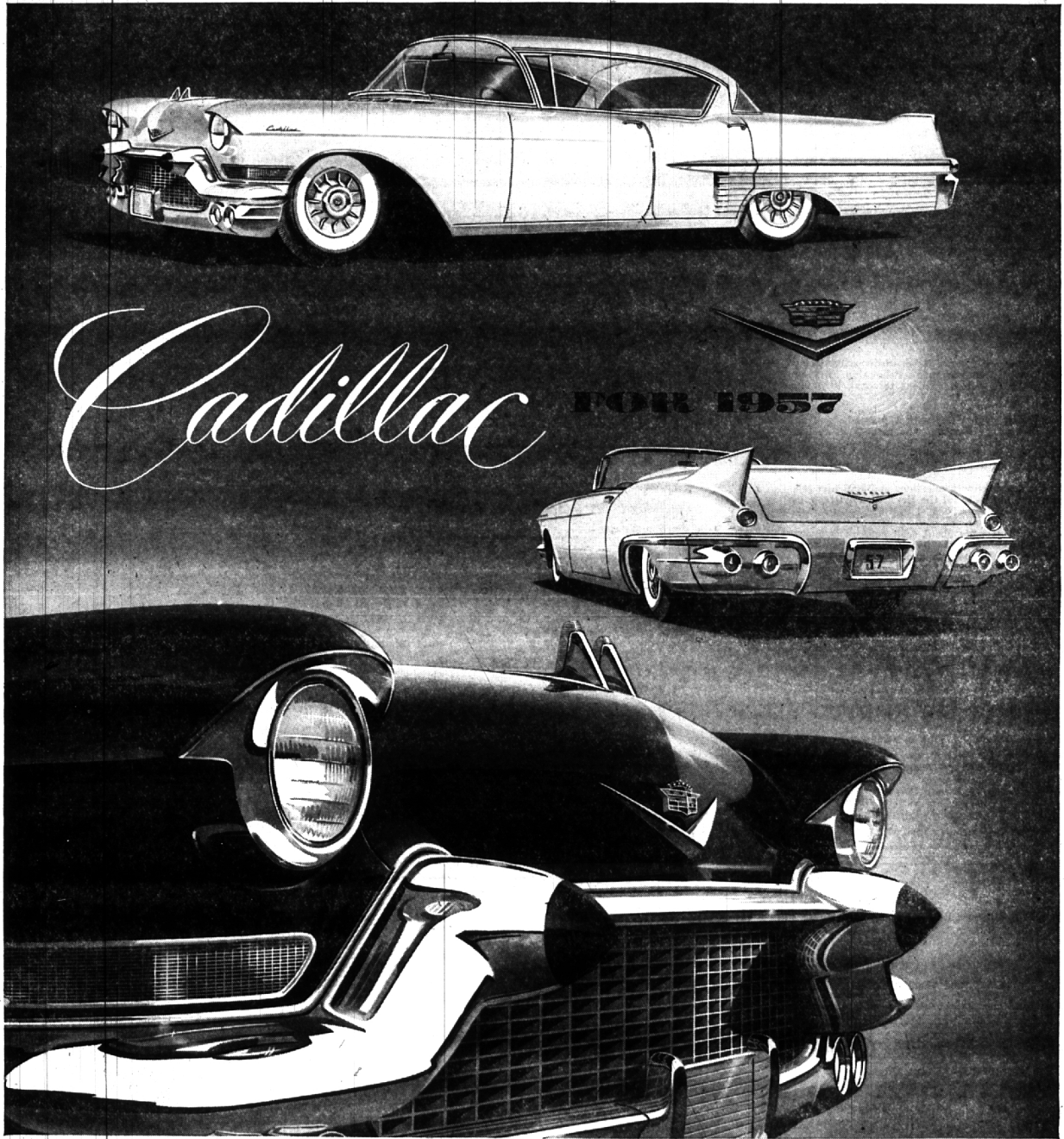
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