

GEOLOGY

Meteoric Origin of Carolina "Bays" Disputed

COLLISION of the earth with a comet or a great shower of meteorites did not cause the "bays" of the Carolinas, those mysterious ridge-surrounded elliptical depressions in the sandy coastal plain of the South. Such is the opinion of Dr. C. Wythe Cooke of the U. S. Geological Survey.

The question of the possible meteoric origin of these "bays" was raised a short time ago by Prof. F. A. Melton and Prof. William Schriever of the University of Oklahoma. They defended their thesis at the recent meeting of the American Association for the Advancement of Science at Atlantic City, and subsequently in print in the *Journal of Geology*. But like all good scientists they invited discussion and the expression of any doubts or disagreement that might exist.

Against their hypothesis that the depressions were gouged out by the impact of celestial missiles, Dr. Cooke advanced one of his own, that the ridges were raised by constantly-blowing winds from the sea, raising sandy beach

ridges around lagoons or atoll islands. He said, in part:

"I shall mention three obvious objections to the hypothesis that the elliptical ridges shown in the photograph surround scars made by meteorites.

Ridges Too Small

"First, the ridges are too small. A meteorite big enough to leave a scar a mile wide would make a tremendous splash when it hit the earth. The rim around it would look like a mountain in the flat Carolina plain. Even granting that rims of various original sizes might have been eroded away or buried by sediments to such an extent that all now rise only about five feet above the plain, the rims around the big scars ought to be wider than those around the little scars; but this is not the case. If there is any constant difference in size, the smaller 'scars' have wider and more conspicuous rims than the larger. Moreover, where two 'scars' adjoin one another, the combined rim ought to be larger than elsewhere, for it contains

the material splashed out of two craters; but in several such occurrences the rim is completely absent where the two bays meet.

"Second, the scars from a shower of meteorites should be scattered haphazard throughout the region in which they occur; but there is a definite orderly arrangement of many of the elliptical ridges. The largest ellipses lie in rather compact groups within large irregular bays. The smaller ellipses lie end to end, like beads on a string. They have a distinct linear arrangement. Moreover, the ellipses of all sizes point directly towards the seashore.

"Third, a shower of meteorites ought to show no preference between upland and lowland; but all the elliptical bays appear to lie within the lowlands. Whatever may have produced these low elliptical sand ridges, they are certainly not scars of meteorites.

Once Bars and Beaches

"In plan the sand ridges greatly resemble racetracks; and, figuratively speaking, that is what they really are—racetracks beaten into shape by the hooves of the horses of Neptune. I shall attempt to show that the elliptical sand ridges are bars and beaches built up in shallow waterways by waves and currents whose direction was controlled by winds blowing predominantly from the ocean. After the completion of the ridges, most of the water was drained away by lowering of sea level, swampy vegetation took root in the low places, and the region assumed its present aspect."

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CHEMISTRY

Powdered Sugar May Run European Automobiles

SUGAR instead of gasoline will soon be propelling some automobiles in Central Europe if a new development made by K. Cuker, Czech chemist, comes into use.

Sugar refiners know all too well that sugar dust is explosive but it remained for Mr. Cuker to proceed from sugar refinery disasters to a plan for practical utilization of the explosive nature of finely powdered sugar in air.

Owing to the high cost of liquid motor fuels in Europe, numerous attempts have been made there to burn cheap powdered fuels in internal combustion engines; but the ash left by such fuels has been a serious obstacle. Sugar, as an ashless solid, is free from this objection and therefore is a promising candidate if its price is sufficiently

low; but it presents difficulties in the matter of sure, dependable explosion when fired in the cylinders of an engine. Mr. Cuker persisted, in spite of this difficulty, and worked out a system of preparing the sugar for use.

His method is to make a composite liquid and solid fuel; alcohol, denatured with naphthalene, is the liquid vehicle, in the proportion of about 3 parts to 1 of sugar. Certainty of detonation is achieved by adding a small amount, less than one per cent. of nitrated sugar, which is more explosive than the sugar dust. Every ingredient of this composite fuel is ashless; and the mixture detonates, when atomized into an engine cylinder and fired, as certainly and as effectively as gasoline.

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Scientists who tested starches found that wheat starch produced the stiffest fabric, potato the least stiff, and corn and rice were intermediate.

Government scientists warn tobacco farmers that they may spread mosaic disease by chewing or handling tobacco from the previous year while they work with young plants.

Karl Wilhelm Scheele

investigated the ores of two heavy metals

Molybdenum and Tungsten

He will tell what he found out about them in the next

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