physics musings

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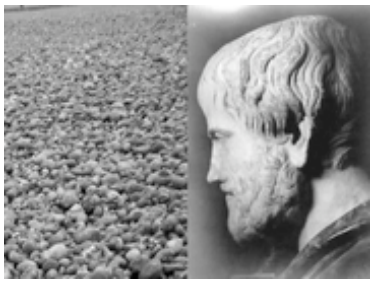
Pebble physics

From the Curiosities Department comes this news over at PhysicsWeb (see also a previous piece at nature.com) about recent advancements in our understanding of pebbles:

> A question that has been around since the time of Aristotle — what shape is a pebble? — has now been solved by physicists in France and the US. Douglas Durian of the University of Pennsylvania and colleagues in Strasbourg say that a pebble is "a nearly round object with a near-Gaussian distribution of curvatures". All pebbles, regardless of their original shape, end up with a similar shape that depends solely on how the pebble was eroded over time. The results could help geologists determine the history of a pebble simply by looking at its geometry (Phys. Rev. Lett. 97 028001).



You can also take a look at this nice presentation for more details, and even see some movies by the people of Strasbourg. For all the nitty-gritty details, the articles can be found in the arXiv, here and here.

This news reminded me of an older one, The Mistery of the Skipping Stone, where the physics of bouncing stones in water is (more or less) explained (unsurprisingly, the determining factor seems to be the initial velocity of the stone: see this very readable paper, to appear in AJP, by the same author, Lyderic Bocquet). A piece of amazing trivia included in the article: In 2002 an American called Kurt Steiner set a new world record when he threw a stone across a river in Pennsylvania and made it bounce… 40 times. Unbelievable? I thought so, but here's the proof. By comparison, the team of physicists writing the article were using a specially designed catapult for their experiments, but they got just 20 bounces. What's your mark?

Update: And, when it comes to talk about physics and throwing, nobody more apt (one would say) than a physicist let loose at the Baseball Major League: in A Magnus Force on the Mound, Major league pitcher Jeff Francis brings an educated insight to the physics of baseball (besides giving me an excellent excuse to publicize the excellent Symmetry Magazine, a joint SLAC/Fermilab publication about particle physics for the rest of us).

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2 Responses to "Pebble physics"

1. *rockwatching* Says:

July 20th, 2006 at 7:46 am

So if the pebble is round, what are all those other rocks called that are scattered around the pebble. Some are flatter, square, oblong. We need a few more words in our vocabulary.

2. *Ann Spam* Says:
July 20th, 2006 at 10:26 am

I wonder whether they'll ever manage to give feelings a shape.

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