keys and inverted chords. Many composers exploit such connections to inject counterpoint into their compositions.

Using the orbifold map, says Tymoczko, it is possible to track common chord progressions in classical music and see that they lie along a predictable trajectory. He can discern, for instance, how certain chords—C, D-flat, E-flat—and chords closely related to them define the music of Schubert, Wagner, and Debussy. "My geometric models show us that there are important strands of commonality running through the last thousand years of music," Tymoczko says, that previously went unrecognized. Tymoczko also believes that his system is invaluable for studying the music of non-Western cultures, which frequently employ tones and pitches off the 12-tone scale. The orbifold map might even open up new tonal possibilities for contemporary composers to explore, though with no guarantee that they will inspire listenable music.

SCIENCE & TECHNOLOGY

Splog Alert

THE SOURCE: "Spam + Blogs = Trouble" by Charles C. Mann, in ***Wired***, Sept. 2006.

With all the hype surrounding the rapidly expanding blogosphere, a world where anybody can write interminably on anything, it may come as a surprise that something far less familiar or friendly is growing even faster: the splogosphere.

Splogs are sand in the machine of the Internet, and they could cripple the online world, warns Charles C. Mann, a science journalist. A splog (from "spam blog") is a bogus blog website containing nothing but gibberish and advertisements. The gibberish is full of keywords carefully selected to lure users of search engines such as Google and Yahoo.

Sploggers work on the principle that once Web surfers arrive at their site, a few will click on one of the accompanying advertisements. Each click sends a few cents into the splogger's bank account. And since any one splogger can run thousands of splogs, the scam can apparently be rather lucrative. One splog partnership claimed $71,136.89 in earnings from August to October 2005.

To be sure, Google and its search engine peers are rushing to fight off the splogs, teaching their search engines to distinguish between legitimate blogs and spam. It's a tricky business; computers just aren't as good as people are at recognizing junk. For every tweak Google makes in its search algorithms, the sploggers tweak back, with a protracted "Google dance" the result.

More ominous possibilities are raised by other techniques sploggers employ to snare Web surfers, such as using robo-software to implant links to their sites in the comment sections of legitimate

EXCERPT

To See or To Think

Cats have iridescent tapeta in their eyes for gathering the palest traces of light; but all that gathered scattery light in their eyes, then, prevents cats from perceiving fine details. And hawks detect details, but since they do not have tapeta for collecting flickers, they must depend on the sun to boom down obvious light for them to see by. Your blessing is your curse and your curse is your blessing. Because you see details, you cannot see hints of light; because you see hints of light, you cannot see details. You would need diverse eyes if you wished to be equally penetrating and sensitive.

You would need to have eyes like the box jellyfish, with its 16 light-sensitive eyes and eight acute camera-like eyes—all 24 eyes hanging down on stalks.

However, you would also need a brain.

But maybe that is not possible; maybe, in fact, the brainlessness of the box jellyfish is a direct consequence of its tremendous powers of sight. Perhaps neither the animal nor the prophet has been invented who could process so thorough a vision.

—**AMY LEACH**, an Evanston, Illinois-based writer, in ***A Public Space*** (Summer 2006)

blogs. "Great point," the fake lead might read. "For more on this issue, click here." Some heavily trafficked blogs, such as Instapundit and Talking Points Memo, don't allow readers to post their own responses to their sites' articles, in part to evade the sploggers.

That represents a grave wound, since interactivity and user-generated content are key attractions of the blogosphere. But it's not just the interminable talkers who may be affected, Mann notes. The whole promise of the emerging vision of what's called Web 2.0 is that people in their professional and personal lives will be able to interact, share, and learn from others using new technologies on the Internet. A plague of splogs could strangle this possibility. At the moment, however, splogs are not much more than an annoyance, and one that savvy Web surfers can surely dodge.

SCIENCE & TECHNOLOGY

In Praise of Competence

THE SOURCE: "Shop Class as Soulcraft" by Matthew B. Crawford, in ***The New Atlantis***, Summer 2006.

The 21st-century rat race requires every warm body to go to college and from there to the cubicles where workers begin their career-long glide through the supposedly crystalline air of the information economy, writes Matthew B. Crawford, a postdoctoral fellow at the University of Virginia. It is time to reconsider an ideal that has fallen out of favor: manual competence.

How did it happen that manual work, given its intrinsic richness, became so devalued?

Skills that require the ability to perfect something concrete are derided as "jobs of the past." While manufacturing jobs have flowed away from America like lava down a steep slope, manual work has not. If a deck needs to be built, or a car repaired, the Chinese are no help. They are in China. And one of the surest paths to a good living is the manual trades, although that is not the main reason to pursue them, Crawford writes. The principal reason to develop manual competence is intrinsic satisfaction.

As a teenager Crawford worked as an electrician, and after attending college he started a small firm. "In those years I never ceased to take pleasure in the moment, at the end of a job, when I would flip the switch. 'And there was light.' It was an experience of agency and competence. The effects of my work were visible for all to see, so my competence was real for others as well; it had a social currency. The well-founded pride of the tradesman is far from the gratuitous 'self-esteem' that educators would impart to students, as though by magic."

Craftsmanship means learning to do one thing really well. It is the opposite of the modern professional's credo, which venerates the management consultant, for example, who can swoop into different companies and whip underperforming divisions into shape. Craftsmanship means dwelling on one task for a long time to get it right. In management-speak, that culture is called "ingrown." By contrast, the roving consultant has soaring freedom.

Yet thousands of years ago, Aristotle recognized the weaknesses of the virtual as opposed to the concrete. Lack of experience diminishes our power to take a comprehensive view of the facts, the philosopher said. Those who dwell in intimate association with nature and its phenomena are better able to lay down principles of wide and coherent usefulness.

How did it happen that manual work, given its intrinsic richness, cognitively, socially, and psychically, became so devalued? Crawford attributes the decline to "scientific management," the discipline that arose in the last century to boost the efficiency of factories. He quotes Frederick Winslow Taylor, an early evangelist of workplace efficiency, who called for managers to gather all the knowledge possessed by workmen and then classify it and reduce it to minute rules. "All possible brain work should be removed from the shop and centered in the planning or lay-out department," Taylor wrote. This made it possible to hire workers who were less skilled and less expensive.

With the degradation of manual labor on the factory floor, the decline accelerated. Now Crawford sees a similar trend in office work,