master the grammar of these languages.

Despite the extensive findings from this research program, many important questions remain: Why do some individuals with autism acquire savant skills while others do not? Is a person's particular area of expertise due to some inherent ability or to preferences in early childhood? What is the role of experience in fostering this expertise? Are the areas of the brain activated during the performance of savant skills similar to areas activated by these skills in non-autistic experts? Are there benefits or losses in other areas of life adjustment that accrue from the acquisition of these skills? Are individuals with autism more likely to develop savant skills in particular domains? With such questions in mind, future studies might focus on the development of the specialized interests, knowledge, and skills that are less elaborated than savant skills but more frequently shown by high-functioning individuals with autism. The author has set the stage for such an approach by determining that a group of musically naïve children with autism had superior pitch identification and memory when compared to a matched group of non-autistic children.

Hermelin's erudite account of this research on savant skills is absorbing and inspiring. Through an experimental approach and appropriate control groups, she has fashioned a robust methodological framework for such studies. Her work is also innovative and stimulating in that it draws on an appreciation of the abilities and strategies exploited by many of us in our efforts to acquire knowledge or undertake creative activities. *Bright Splinters of the Mind* is particularly welcome because it identifies characteristics not by analyzing the weaknesses of individuals with autism but rather by focusing on some of their very real strengths.

NOTA BENE: GENOMICS

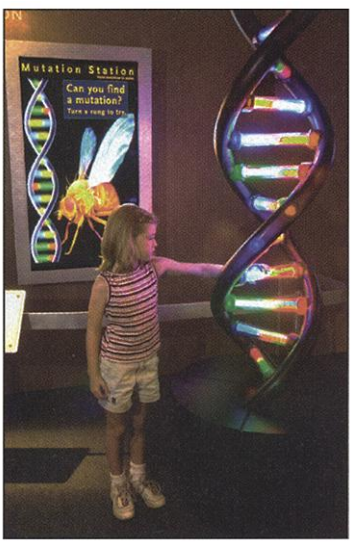
Are You Ready?

"The genomic revolution is here: are you ready?" queries the latest exhibition at the American Museum of Natural History in New York City. Visitors may not be ready when they enter this ambitious offering, but perhaps they will be when they leave. Upon arriving, one sees a vial of DNA in a plinth—but reach out to pick up the vial and the hologram disappears, a fitting illustration of the invisible nature of the code of life.

The bases (green As, red Ts, yellow Gs, and blue Cs) constituting the entire human genome sequence scroll silently down a ceiling-to-floor screen. For those who do not have 11 months to watch the complete sequence pass by, its vast length is elegantly portrayed by three giant helical columns holding 140 copies of the Manhattan telephone directory. This is the number of volumes required if every letter and number in the directory were replaced by the 3.2 billion bases of a single strand of the double helix.

The most ambitious part of the exhibition seeks to explain how genes work. A series of wall panels take visitors on a journey through the eye into the cone cells (the color interpreters) of the retina. These panels describe how cone cells make opsin (a protein required for color vision) and how mutations in opsin cause red-green color blindness. Each step in the synthesis of opsin is rendered comprehensible thanks to a clever computer animation. Small children (perhaps the molecular biologists of tomorrow) watch mesmerized as a strand of messenger RNA shoots out of the cone cell nucleus and unites with the rotund factories (ribosomes) that will translate the mRNA into protein.

Nearby, a 576-square checkerboard that lights up in consecutive patterns of red, green, and yellow squares illustrates how DNA chips have been used to decipher which genes are switched on in breast cancer cells (red) but not in healthy breast epithelium (green). This display segues neatly into a frank discussion of the pros and cons of genetic testing through interviews with families battling inherited diseases. The story of two sisters with a family history of breast and ovarian cancer brings home the anguish that accompanies a decision to be tested—and the subsequent joy and sadness when one sister tests positive (she developed ovarian cancer a year later) and the other negative (she remained disease-free). Hope and heartache also feature in a description of attempts to use gene therapy to repair the defective DNA sequences that underlie hemophilia, Canavan disease, and severe combined immunodeficiency.



CREDIT: DENIS FINNIN/AMNH

One of the most imaginative structures in the exhibition, and a great favorite with young museum goers, is the "mutation station" (left). A sculptor, an animator, and an electronics expert collaborated to create this vibrant model of a DNA double helix (representing part of a *Drosophila* gene). Base changes are introduced by twisting the illuminated, colored plastic rungs of the DNA ladder (the A-T and G-C base pairs of the gene). Each twist of a rung is accompanied by a color change, a sound reminiscent of a *Star Wars* light saber, and a display on an adjacent screen that indicates if the base change is a point mutation that results in a fruit fly with stunted wings or with a black body.

Equally innovative is the small laboratory where visitors, under the direction of a trained demonstrator, can prepare their own DNA from buccal cells of the cheek. There was no shortage of participants, who were perhaps lured by the eerie glow of the green, red, yellow, and blue luminescent laboratory tables (reminders of A, T, G, and C). A sold-out evening series of hands-on laboratory workshops (during which participants prepare their own DNA and watch it being sequenced) confirms the general public's fascination with molecular biology.

The final section tackles the arguments swirling around cloning, genetically modified organisms (GMOs), and genetic enhancement. The risks and benefits of GMOs are honestly debated in a comprehensive display that grapples with issues such as labeling foods containing GMOs, producing vaccines in plants, and the effects of GMOs on the environment.

Although the volume of information presented in *The Genomic Revolution* is overwhelming, everyone should leave this ambitious exhibition having learned something new.

—ORLA SMITH

The Genomic Revolution

Rob DeSalle, Curator

American Museum of Natural History, New York. 26 May 2001 to 1 January 2002. www.amnh.org/exhibitions/genomics/