Down and out: Darwin did much work around his home at Down House. (Photo: Natural History Museum.)

The survey will use the methods employed by Darwin alongside modern botanical survey techniques. Wildflower and conservation enthusiasts will be encouraged to help the survey and their findings will be collated and added to the Natural History Museum's collections. They will be included in the botany collection soon to be housed in phase two of the Darwin Centre. This phase will provide new storage facilities to safeguard millions of specimens from the museum's insect and plant collections, preserving them for generations to come. It will also provide new state-of-the-art laboratories for scientists and give visitor access to these important collections and the research they support.

In addition to the survey a programme of events and activities, such as pond-dipping, wildlife displays and guided walks, will take place throughout the summer to build an understanding of the natural world and Darwin's work and to celebrate the diversity of wildlife.

Darwin's home, gardens, meadows and surrounding landscape, owned by English Heritage, are a proposed World Heritage Site. Researchers and enthusiasts are hoping the new activities drawing together history and science will help bolster the bid for such status.

Q & A

Norbert Perrimon

Norbert Perrimon is Professor of Genetics at The Harvard Medical School and an Investigator of the Howard Hughes Medical Institute. He grew up in Normandy and obtained his graduate degree at the University of Paris VI with Mme. Madeleine Gans. He then studied with Anthony Mahowald at Case Western Reserve University before taking a position in 1986 at The Harvard Medical School, where he has been ever since. His main contributions in science are related to the development of technologies for functional genomics and dissection of signal transduction pathways in Drosophila*.*

How did you get into biology? I grew up with a deep interest in paleontology and evolution, which led to an interest in developmental biology. During my undergraduate studies, I realized that using genetics to study *Drosophila* patterning could answer many of the questions that interested me. From then, I was hooked. I love genetic tricks and applying them to studying biological processes, particularly signal transduction pathways. There is finality to the development of a new methodology that I like: it's like solving a math problem, except that, in the end, there is a clear application for the 'solution'. This is very rewarding.

Do you have a favourite paper? Many, but the one that had the most impact on my scientific career was the first paper my thesis advisor, Mme. Gans, gave me to read: a clonal analysis of the female germline by Eric Wieschaus and Janos Szabad, published in *Developmental Biology* in 1979. It was in English, which was not my strong point, and contained a lot of genetic jargon and methods. After I mastered this paper, all others were easy to read.

What is your favourite conference? These days I prefer small, workshop-like meetings rather than large diffuse conferences. To me a successful meeting is when, on my return, I have a clear overview of the meeting topic and what the next issues to be solved are.

Any strong views on the peer review system? The peer review system, even with all its flaws, is the backbone of success in research. It is what drives excellence and ensures that the money we are awarded to conduct science is well spent.

How about the sharing of reagents? I feel very strongly that all published reagents must be made freely available immediately after publication. It guarantees reproducibility in science and stimulates further discoveries. I make it a rule that all requests for our published reagents be met within one to two weeks. It can be difficult for my graduate students and postdocs to comply with this rule, as in some cases it is clear the reagents will directly benefit our competitors, but the rule still holds. As obtaining published reagents is time consuming and not always straightforward, in my ideal world there would be a centralized distribution repository where all published reagents would be sent at the time of publication. This would also help to ensure that, when a lab closes down, the reagents remain available to everyone.

Any advice for someone wondering what area to study? Follow your interests, not what is trendy or what you think will lead to a good job in a few years. Identify an important biological question, keeping in mind where the question fits in the 'big picture'. Find the best system or organism in which to address the question, and apply to the lab best fit to conduct the science. There is a lot of emphasis these days on 'multidisciplinary approaches' in science. For example, at the postdoctoral level, some funding agencies emphasize the importance of a shift in field or

organisms to increase the applicant's training potential. Although I can understand this trend, I'm not convinced that it's such an important issue. I have no doubt that capable and innovative students will always find the best approach to solve whatever problems they study. In the long term, I believe it is more important to work in a multidisciplinary environment where a trainee will be exposed to labs with diverse approaches and backgrounds.

If you had to start all over again, would you be a scientist and if so in what field? I have no doubt that I would be in science as this has always been my center of interest. But I'm not sure about the precise area of study that I would choose today. I believe that when I was 24 years old I had more readily available 'facts' about science in general, including physics and math, than I have now. I think it would be great if I could step back and allow my 24 year old brain evaluate my science today. My hope would be that I would like what I saw.

Your ambitions? What I really would like to understand is the spatial and temporal organization of a network of signaling pathways, such as a receptor tyrosine kinase pathway or the Wnt pathway. There are so many fundamental questions in signal transduction that are far from being solved. Where and when is a ligand secreted, and how does it interact with the extracellular matrix? Is the transducing receptor localized, and if it is, what is the biological significance of such compartmentalization? How does the localization of cytoplasmic proteins to a certain region of a cell contribute to the overall signaling characteristics of the pathway? How are signaling kinetics achieved in isolation or within a network of communicating pathways? I could go on and on and on, but it's time for me to go and walk my dogs.

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Coral surprise

Recent reports indicate that many shallow coral reefs in the Caribbean, and other parts of the world, are under threat because of disease, pollution, land run-off and possibly rising seawater temperatures, that have caused increased coral mortality. But new studies on deep-water coral reefs, feared also to be under stress but little studied because of their inaccessibility, suggest the contrary: they are in surprisingly good shape.

Researchers from the Woods Hole Oceanographic Institution (WHOI) have been using a new small craft to survey the deep coral reefs surrounding the US Virgin Islands and other surrounding areas of the tropical Atlantic. They have found that these reefs may occupy a much larger area and be in better health than previously thought, based on the evidence gathered by the new autonomous vehicle.

Scientists and engineers began using the underwater vehicle to study deep-water coral reefs and related

Deeper down: Strobe-illuminated pictures reveals coral life at new depths. (Photo: WHOI and the University of Puerto Rico/Hanumant Singh and Roy Armstrong.)