

## *Ubx Expression*

### Irene Kopelman

My PhD project researches the problem of the tension between sameness and difference. Throughout the upcoming years of research, I am looking to re-open the category of sameness, and using means of representation, I hope to make evident the impossibility of enclosing the complexity of things in departmentally restrictive categories.

During the nineteenth century, a scientific project needed to force things into categories in order to visualize the rules they followed and which organized the world in a logical system. This was a fundamental process to schematize how we look at things and simplify it to the extreme, thus overlooking any singularities.

My research project concentrates on re-opening some of these categories, and to look upon differences and singularities. The project uses elements from the history of science as resources and attempts to generate, from both art practice and artistic thought, a type of knowledge extrinsic to the field of philosophy or history of science, but still touching upon issues they all share.

*Ubx expression* is the first project I am developing in the context of the PhD program. *Ubx expression* is a research project carried out at the Entomological Collection in the University of Amsterdam (UvA). The research focuses on the morphology in insect patterns, thus looking at the specimens themselves but at the same time intending to examine the overall structure which is needed in order to archive collections of this sort. The research also uses sources from other collections, such as the Geological Museum in Amsterdam and the University Museum in Utrecht.

As I said at the beginning, my PhD project researches the problem of the tension between sameness and difference. Natural sciences collections are the ideal platform for working on this issue, since one can observe a vast amount of samples and at the same time the strategies employed to organize those samples.

My field work consists largely of visiting natural sciences collections, hunting for material with which I could work, and building up an archive of raw material. By the end of the research period, I will have an archive as part of the outcome of the project. This archive will continue to develop and grow during the entire trajectory. At the same time, I will choose several museums where I will develop site-specific projects.

Working with archival material, one of the first questions one encounters is how to approach the collections – I'm sure every artist working with archival material has a different strategy.

For me the most important thing is to find the people who will open up not only the collection in a material sense, but also the stories surrounding it. Without those stories, the archival material is completely hermetic and therefore dead. Related to this is the issue of patience, since it takes much time and multiple visits to get to know the people in the collections, to get an idea of how to navigate each collection and how to tackle the often immense amount of information.

### On *Ubx expression* - references and issues

The first of my PhD projects uses the Entomological collection in Amsterdam as a base. During the past few months of research, I have been spending time each week in the entomological collection, which is part of the Zoological Museum at the University of Amsterdam. It is a very large collection, with about eight million labeled specimens. The collection is used for research and is not open to the public. I decided to start my PhD project there, as I have visited this collection for several years now, so I know it quite well, and the people who work there too.

I have chosen to work with moths and butterflies, because their pigmentation makes it easy to visualize the differences in patterns. Literally each individual specimen, even when belonging to the same species and family, is always at least slightly different from the other. The rule of differentiation is shared by any living and non-living organism, but in the case of moths and butterflies, the differences crystallize in shapes and colors.

The title *Ubx expression* alludes to a chemical expression, the Ubx protein, which regulates detailed aspects of scale morphology, pigmentation and eyespot pattern on the hind wings of butterflies. The Ubx protein affects ways in which patterns are organized and is related to the variability of those patterns. This project is still in progress and at Apexart, New York, in the *Nameless Science* exhibition, I am presenting the initial outcome.

Even though I had a premise I wanted to prove in the *Ubx expression* project, it was really very difficult to visualize differences at first glance when opening the drawers. During the first few weeks, I was photographically documenting many samples of the same type, comparing them and trying to figure out the differences among them. After a while I started making drawings, since that seemed to allow an analytical observation of the samples and apprehend the small variations and permutations in each individual butterfly. The process of making drawings slowly developed into an urge to build an archiving system allowing the visualization of each individual drawing and comparisons. [Fig. 1, Detail of *Ubx expression* installation, *Nameless Science*, Apexart. Image credit: Hugh Watt]

The pattern on butterfly wings is unique among animal patterns in that the elements composing the overall pattern are individuated. Unlike the spots and stripes of vertebrate color patterns, the elements of butterfly wing patterns have identities that can be traced from species to species, and typically across genera and families. Because of this identity tag, it is possible to recognize homologies among pattern elements and to study their evolution and diversification.

During pattern evolution, the same set of individual pattern elements is arranged in novel ways to produce species-specific patterns, including such adaptations as mimicry and camouflage. Patterns still exist and coexist with many others which evolved from the first

one. You need a trained eye to see that a pattern undergoes different variations and permutations during thousands of years. In the evolutionary line, sometimes we find the spots as spots, sometimes they expand into a stain, or merge together into a line. All of those species could be flying and coexisting at the same time in amazing cases of camouflage and mimicry.



[Fig. 1]

After spending a few months in the collection and opening a fair amount of drawers, I understood the urge to schematize the variety of forms into an idea of what those forms might mean. While the theory that the patterns are never exactly the same has once more been proven throughout the project, I understood the need to create some kind of synthesis which could help identifying and differentiating among the immensity of samples within the same type as one image. The overwhelming vastness in existing butterflies, the subtlety that sometimes exists between different families, combined with the fact that each individual sample is different, makes that universe incomprehensible. Once I started to look at a few drawers and, within these, at individual samples, I understood not only the need to create classification schemes which would identify at least the various types, but also the need to apply to the natural system an artificial system that would help us to understand it.

It was interesting to me to realize that the distance imposed by any amount of reading on the subject would not help me to understand this in the same way as undergoing the process by navigating the collection, trying to find a system to manage it, and making the series of drawings. I understood also, more profoundly this time, the concept of evolution. It is actually very easy to visually understand it when you can see how a family of butterflies changed color overnight because they needed to camouflage for a certain environmental reason. That realization might be quite a simple thought and we might read it and reread it in many books, but my point is that there is a certain type of embodied knowledge that one can achieve only by undergoing the experience.

The understanding does not come into being only by visualizing the individual samples, but by a very specific approach to the visual information which is (in my case) the attempt to understand its morphology by drawing the samples. Opening a drawer, observing the samples and even photographing them did not lead me to a very comprehensive understanding of either the samples or the collection. It had even been impossible to notice, by merely observing, that every single wing in every butterfly is unique. It was only by drawing them

that I was able to acknowledge the small details that made each pattern unique, similar to the next but never the same. There is an analytical attitude to drawing which forced me to “see” what I could not otherwise visualize in the samples. [Fig 2-3. Detail of *Ubx expression* installation, *Nameless Science*, Apexart. Image credit: Hugh Watt]

Another interesting thing about drawing as a way of acquiring a certain type of knowledge is that it also requires a certain type of skill. These skills are not only for drawing but also for observing. You cannot learn this type of skill overnight; it requires some time and patience.

The story of Leeuwenhoek’s microscope is a fine example to quote in this context, speaking of skills for observing and the subjectivity of communicating such observation. Leeuwenhoek invented a very special microscope, a tiny one, which was controversial in his time because none of his contemporaries could see what he was able to see through it. The reason for that is that the microscope had an extremely small lens, with a very short focal distance, requiring perceptual skills to look through it. Similarly, one needs to have or build up a repertoire of skills in order to see what is in the patterns. The eye needs to be trained - and drawing is an effective tool for training the eye.



[Fig. 2]

The time factor becomes then a fundamental factor for this project; time to see, time to draw, and time to engage not only with the material collection but also with the people working in the collection. The vastness of the collection becomes a blockade when one tries to enter it. One can easily get lost, either in the overall landscape of the infinite drawers, or in the details of one particular sample. It is the people who work in the collections who could help make or break a project of this kind. And it is again the time factor, allowing them to understand what you are looking for in the collection. They need to see what you are doing, look what you are looking at, and see you getting lost in the collection a few times until they realize how they might help you and start guiding you through the collection. Lastly the time factor is also implied in letting the information settle, your processing it until you understand how to materialize it as an artwork.

During this kind of research, one often finds impressive information or beautiful material which cannot always be readily applied to a project. It is important to understand that there are a series of filtrations and processes that the material has to undergo before it can be turned

into a piece. These filtrations are material and conceptual operations, which create distance between the references and the material outcome of the project.

*Ubx expression* is in the stage of processing the visual and conceptual information related to the project, and while some steps have been taken towards the concretizing of a piece, there still is space for much further development within the project. The universe of insects is a very complex one, and the entomological collection, as an artificial organization of it, is even more complex. Within my process, this has opened up a very wide range of possibilities which will continue to crystallize in different forms in the coming months.



[Fig. 3]

This train of thought led me to become acquainted with an academic discipline focusing on the embodiment of knowledge, called Experimental History. That field of study has developed increasingly over the last fifty years and it seeks to draw attention to the role of materials, techniques and practice in scientific research. The research method implies the re-making of scientific experiments in order to understand the experiment as such. The next question, both for them and equally for me, is how to communicate that experience.

## Response

### Grant Kester

One aspect of your work is your interest in systems of scientific classification and the question of how certain objects possess a kind of irreducible specificity, because they can never be fully grasped by classifying and by systematizing. Your talk might conventionally be seen as a way to criticize classification systems. You said that classification systems have the effect of imposing a kind of totalizing, systematizing gaze on the thing as such, a thing that can never be fully comprehended by categorical knowledge. Thus, you romantically hold out for the idea of some inevitable, natural essence that cannot be fully mapped, codified, controlled, identified, visualized and so on.

This seems to be one trajectory in your work, but at the same time, the other trajectory is that you keep trying to precisely map and capture idiosyncratic differences, which could arguably be seen as another way of objectifying these objects in a more precise way while trying to capture their unique specificity. Why does it matter to know that these discrete objects are

different, that there is such difference in nature? What did you, as an artist, learn from this project you did not know when you started this project? What insight was generated through the practice itself? And knowing that one butterfly is much more complex than the existing classification systems can capture; doesn't that simply become an argument for science to get better and better in describing things? So, maybe it is an argument that science needs to borrow from the arts in order to get better and better at classifying and systematizing the natural world.