Stone Age people used flint tools which were made by removing small flakes from big stone nodules. Both the flakes that were separated from the stone nodules, as well as the nodules given the desired shape (e.g. a point) by knapping could then serve as tools. During archaeological excavation, places where flint tools had been knapped are often found. On such sites archaeologist find a big number of flakes coming from tool knapping, as well as failed or unfinished forms left behind and treated as waste by knappers. The successfully knapped tools were so precious that when they were leaving the camp, knappers collected everything and moved it all to the new site. Among the artefacts that an archaeologist comes across, finished and unbroken tools are rare. This raises the question how based on the numerous stone artefacts which were waste pieces, failed or unfinished tools, archaeologists can possibly say which tools were the ideal forms needed by men back then?

Archaeologists use two methods to answer that question, one of which is built upon a jigsaw rule. If flakes were removed from a nodule, then collecting enough of them and putting back together can allow us to recreate the nodule itself. Refitting the flakes together makes it possible not only to check what type of tool resulted from knapping, but also to analyse the process step by step. By doing this, we can observe the knapper's errors and the solutions he used. In short, we can follow his decision process which led him to create the tool he needed. This is a real treat, especially when we think of the Neanderthal, or the more ancient hominidae.

However, there are sites (e.g. the remains of temporary hunting encampments) where knappers made no tools: they arrived with their finished tool set which they repaired, threw away or left behind. How can tools on such sites be analysed if there are no flakes from their knapping? Is it possible to use the jigsaw rule on the ready-made tools to reconstruct the stages of their knapping? The answer is yes! Some twenty years ago, French and German scientists began to use a method called *the scar pattern analysis* which is actually an inverse of a jigsaw rule. When we have a ready-made tool and no flakes coming from its knapping, we still can reconstruct those flakes looking carefully on the surface of the tool. At the surface we can see the traces of the removed flakes, we call them scars. There are multiple scars visible on each tool, so if we are able to say which of the scars were made earlier and which of them latter, we can reconstruct virtually the flakes which are missing and analyse the stages of tool knapping.

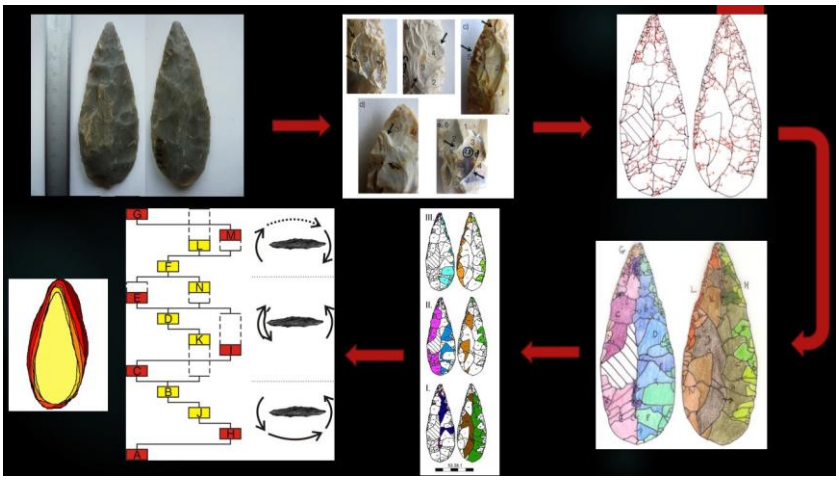

Fig. Scar pattern analysis procedure.

Scar pattern analysis has been used for a long time, but it still needs to be tested. This scientific project has the aim of filling this gap by checking the correctness of results received thanks to this method. What will we do to test how well our flake reconstruction method based on scars visible on tool surface reflects the actual arrangement of flakes separated from that tool during knapping? The answer is simple. An experiment will be made, in which we will knap several dozen tools and then ask a group of people to do scar pattern analysis on them. Finally, flakes from knapping will be refitted to compare the results of the two analyses and locate possible errors. If we are able to make the experiment again and again on a sample large enough, we will calculate the error involved in the use of the tested method. This way, our method will become a scientific one as any person who uses it will be able to say “I have got results like this or that, and the error is calculated to be X”. Any research or measurement method is subject to error, but the ability to determine the error margin is what makes the method reliable. Have you ever wondered about the measurement error of your bathroom scales? No? Well now at least you know how to test it.