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NEW TAXONOMIC METHODS IN CONCHOLOGY

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Since one year, our company started exploring possibilities for faster determination of postage stamps. The obvious solution was that computers replace the manual searches in catalogues by searches in existing digital databases. The process is called Image Recognition. Existing systems are out of price for small companies but we finally succeeded thanks to the open source community to develop a functioning program.

The thinking that such a system may work for the determination of shells was only one step away, so we tried out existing systems and this with fantastic good results. In seconds only programs now sort out similar looking shells in huge databases. The big advantage is that most systems not only show “similar” specimens, but all shells closely resembling the sought after specimen. So, the IR does not only find correct species, but also shows relations among different mollusks.

There is no doubt that this development in programming will prove to be a great additional tool to the already existing methods of determination and taxonomy. As all methods, it has flaws and the human factor will prove to remain a necessary addition to the machine results. Early taxonomy in malacology was mainly focused on external shapes, later, dissection became important and a whole school dedicated time and effort in looking at radulae. The radula became the uppermost way of classification, sometimes with nice results, sometimes with disastrous results. Today, it's molecular research, which is regarded as the ultimate method, again with nice and disastrous results. IR is the next additional tool and I guess that if we combine all methods, the results will prove to be very good.

Advantages of IR are obvious: hard to make and equally hard to use dichotomic tables are a thing of the past. Tedious measurements of shell shapes become almost without sense: the

computers calculate shapes in seconds. However, the systems, in order to work, need huge databases of specimens photographed in the same way as the “search item”. Our company has obviously the most extensive databases of shells existing today. They number about 400 000 specimens of well over 16 000 species. But this is still small compared to the 56 000 known marine species and the almost equally same number of land and freshwater snails. Systems do not yet work properly when black and white and color images are mixed. This is a major problem to solve for the future, as science, how strange it may be in the world of today, still uses black and white printing a lot. This is very upsetting, as even cheap goods are now brought to the public in color: even potatoes are shown in color in small supermarkets. New species do not deserve the same attention today. The interpretation of IR results will still be a matter of experts. Many species have similar or almost similar shapes, even when living on the other side of world. But different animals. In fact, they may even belong to different families. Cases are known where animals from different phyla have similar appearances. A classic example is the young stage of a common Indo-pacific sea cucumber that has virtually the same shape and the same colors as a common sea slug, which again has the same shape and colors as a flatworm. IR will not be able to distinguish such things before a long time.

When in some years from now the IR has become cheap, as most often happens with new technologies, and it is available to Mr. Everybody, the net will be the database to search and it is almost certain that IR will be applied to it. If the scientific world decides and get the means to put all holotypes online, then the science and art of conchology will become much easier for all of us.