

frustrates the attempt to trace the gradual growth and metamorphosis of the larvæ in this way, and there is no other resource except comparison.

The first step in this direction is to trace the history of each larval type, by the selection and comparison of those larva which belong to the same series. In accomplishing this I have been guided in part by general resemblances, but more especially by comparative measurements. After I had tabulated the measurements in millimetres of a number of specimens, which resembled each other quite closely, and formed a tolerably complete series, I failed at first to trace through the columns of the table any such conformity to a general law as I had expected, but more careful examination indicated that this might be due to the fact that the history of the larva consists of metamorphosis as well as growth, and that the size of one organ might, when compared with that of another organ, show a gradual decrease during the successive stages, while its absolute size was actually increasing. I therefore reduced all my measurements to a common standard, and expressed them in thousandth parts of the total length of the larva at each stage instead of in millimetres, and I found that this at once introduced order where all had before been confused, and that, when thus reduced, the measurements usually enabled me to decide with confidence whether a given larva does or does not belong to a certain series.

In a few cases these comparative measurements gave proofs of specific identity which could hardly be made more conclusive by rearing the larvæ. Thus the lengths of the series of *Coronis* larvæ shown in Pl. XIII. figs. 1-8 are as follows, and if the length of the first stage be successively multiplied by five-fourths of itself, and this number by five-fourths of itself again, and so on, we obtain the series of numbers given in the second line, and as it is not conceivable that an accidental collection of larvæ should exhibit such exact conformity to a numerical law, we may feel certain that these larvæ are genetically related, that they belong to one species or else to closely related species, and that the series is consecutive, with the exception of one missing stage before the last.

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| 4·16 mm. | 5·29 mm. | 6·49 mm. | ... | 10·21 mm. |
| 4·16 „ | 5·20 „ | 6·50 „ | 8·13 mm. | 10·16 „ |

After one or two series had been traced out in this way, the general character of the metamorphosis itself became a trustworthy guide for establishing the series for a closely related species, and thus simplified the labour, and the next step was the reference of each larval type to its proper adult genus.

If the differences between the larvæ are due to secondary modification, we should not expect the larvæ of two distinct adults to become modified in the same way, and although it is of course possible that the larvæ of two closely related adults might