

common knowledge that Strasburger (*Archiv mikroskop. Anat.* 23: 246-304. 1884) proposed the terms prophase, metaphase and anaphase, using each of them in the plural, and defining metaphases thus (p. 260): "Ich werde, im Gegensatz zu den Prophasen die mit der Längsspaltung der Segmente in der Kernplatte ablaufen, die Stadien vom beginnenden Auseinanderweichen der Tochtersegmente bis zur vollendeten Trennung und Umlagerung darstellend, als Metaphasen zusammenfassen." At least as late as the publication of the first edition of his *Lehrbuch* (1894), Strasburger defined the phases in the same manner, but somewhat later he shifted his ground and transferred the idea of separation of the chromosomes to the stage which he then called anaphase (singular), thus: "Das Stadium der Kernplatte ist die *Metaphase*. Das Auseinanderweichen der Tochterchromosomen erfolgt in der *Anaphase*." (*Lehrbuch*, neunte Auflage, 1908, p. 71.)

It is important to note that Strasburger adhered to his original definition of the prophase (or prophase) as including the longitudinal splitting, and consistently drew a sharp distinction between the splitting and the separation of chromosomes. Some more recent writers however have not hesitated to define metaphase as including the splitting, thus taking what would seem to be an unwarranted liberty, or at all events paying scant attention to the definition of the terms as proposed by their originator. Shull indeed considers that "the metaphase is a brief phase covering no more than the period of splitting of the chromosomes" (Shull, A. F., *Principles of Animal Biology*, 2nd edition, p. 67). If "metaphase" is taken to include the period of splitting of the chromosome, it is pertinent to inquire what becomes of "prophase," in view of the early appearance of doubling of the nuclear filament in some organisms. In spite of the unquestioned significance of the splitting in relation to biological theory, this overlapping of the defined fields of prophase and metaphases can lead to nothing but confusion in the mind of the student.

At least one writer has expressed the opinion that the question of terminology is unimportant, and probably there are many who agree with this view. But would it not be advisable to altogether discontinue the use of the terms, if we do not know what they mean when they are used? Allen (*SCIENCE* 64: 138-140. 1926) suggests that we use each of the four terms in the plural, and retain the original significance of "metaphase." But such usage disregards the mature judgment of the originator of the terms, as expressed in the later writings of Strasburger. Except for the use of three of the terms in the plural, the latest edition of Wilson's classic work conforms to Strasburger's later writings, while Sharp's valu-

able book also conforms to Strasburger's later definition of the terms. It would accordingly appear to be in good taste for text-book writers and others to either follow this good example or else to abandon the use of the terms.

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THE RECEPTION OF THE "ORIGIN OF SPECIES"

MAY I add a postscript to Professor Osborn's letter of November 12?

Professor Osborn tells us that the first edition of the *Origin of Species* (an edition, by the way, of a thousand copies) was published on November 24, 1859, and was sold out on the day of issue. I happen to have a copy of the fifth thousand (1860) whose first owner has inscribed it February 24, 1860. Over four thousand copies had been disposed of between November 24, 1859, and February 24, 1860.

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PLASTICINE MODELS

"PLASTICINE models in teaching mitosis," reported in a recent number of *SCIENCE* by Dr. Black, of Connecticut College, was helpful and I intend to profit by her suggestion.

For several years I have constructed in class demonstration models of the metaphase and anaphase stages, using wires with the plasticine, and I have found that the students grasp the idea of the polar view much more quickly than from a flat drawing. In our course in general zoology we have each student use plasticine frequently in their study of the smaller forms, such as *Paramecium*, *Hydra*, *Obelia*, etc. We find it additionally helpful in understanding the cleavage process.

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LOST X-RAY SPECTROMETER

IN the hope that we may be able to restore a piece of lost property to its owner we would greatly appreciate if you would publish the following facts.

Recently the New York Central Railroad had an auction sale of unclaimed baggage. One of the pieces of baggage contained what appears to be a simple X-ray spectrometer with a fluorescent scale for visual observation. The purchaser brought the apparatus to us for identification, and he is willing to restore it to its owner if we can locate him.

The instrument was sent as baggage on the New York Central Railroad from Albany, N. Y., to Chicago, where it arrived at 10 A. M. on October 21,