

Ancient Beliefs of Heredity

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Abstract

Heredity, the sum of all biological processes by which particular characteristics are transmitted from parents to their offspring. The concept of heredity encompasses two seemingly paradoxical observations about organisms: the constancy of a species from generation to generation and thus the variation among individuals within a species.

Keywords: Genes • Prepotency • Telegony

Introduction

Constancy and variation are literally two sides of an equivalent coin, as becomes clear within the study of genetics. Both aspects of heredity are often explained by genes, the functional units of heritable material that are found within all living cells. Every member of a species features a set of genes specific thereto species. It is this set of genes that gives the constancy of the species. Among individuals within a species, however, variations can occur within the form each gene takes, providing the genetic basis for the very fact that no two individuals (except identical twins) have exactly the same traits.

The genotype remains constant throughout an organism's lifetime; however, because the organism's internal and external environments change continuously, so does its phenotype. In conducting genetic studies, it's crucial to get the degree to which the observable trait is due to the pattern of genes within the cells and to what extent it arises from environmental influence. Because genes are integral to the reason of hereditary observations, genetics can also be defined because the study of genes. Discoveries into the character of genes have shown that genes are important determinants of all aspects of an organism's makeup. For this reason, most areas of scientific research now have a genetic component, and therefore the study of genetics features a position of central importance in biology. Genetic research also has demonstrated that virtually all organisms on this planet have similar genetic systems, with genes that are built on the same chemical principle which function according to similar mechanisms. Although species differ within the sets of genes they contain, many similar genes are found across a good range of species. For example, an outsized proportion of genes in baker's yeast are also present in humans. These similarities in genetic makeup between organisms that have such disparate phenotypes are often explained by the evolutionary relatedness of virtually all life-forms on Earth. This genetic unity has radically reshaped the understanding of the connection between humans and every one other organism. Genetics also has had a profound impact on human affairs.

Discussion

The Ancient beliefs of heredity, states that the blood theory of heredity

dignified with such a reputation is basically a neighborhood of the folklore antedating scientific biology. Its inherent such popular phrases as "half blood," "new blood," and "blue blood." It doesn't mean that heredity is really transmitted through the red liquid in blood vessels; the essential point is that the assumption that a parent transmits to each child all its characteristics which the hereditary endowment of a toddler is an alloy, a mix of the endowments of its parents, grandparents, and more-remote ancestors. This concept appeals to those that pride themselves on having a noble or remarkable "blood" line. It strikes a snag, however, when one observes that a toddler has some characteristics that aren't present in either parent but are present in other relatives or were present in more-remote ancestors. Even more often, one sees that brothers and sisters, though showing a family resemblance in some traits, are clearly different in others. How could an equivalent parents transmit different "bloods" to every of their children?

However, Mendel disproved the blood theory. He showed:

- That heredity is transmitted through factors (now called genes) that don't blend but segregate.
- That oldster transmits only one-half of the genes they need to each child, and that they transmit different sets of genes to different children.
- That, although brothers and sisters receive their heredities from equivalent parents, they are doing not receive equivalent heredities (an exception is identical twins).

Mendel thus showed that, albeit the eminence of some ancestor were entirely the reflection of his genes, it's quite likely that a number of his descendants, especially the more remote ones, wouldn't inherit these "good" genes in the least. In sexually reproducing organisms, humans included, every individual features a unique hereditary endowment.

Hence, in many cases it has been observed that the noninheritance of acquired traits doesn't mean that the genes can't be changed by environmental influences; X-rays and other mutagens certainly do change them, and therefore the genotype of a population can be altered by selection. It simply means what's acquired by parents in their physique and

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intellect isn't inherited by their children. Related to these misconceptions are the beliefs in "prepotency"—i.e., that some individuals impress their heredities on their progenies more effectively than others—and in "prenatal influences" or "maternal impressions"—i.e., that the events experienced by a pregnant female are reflected within the constitution of the kid to change state. How ancient these beliefs are is typically recommended within the Book of Genesis, during which Jacob produces spotted or striped progeny in sheep and goats by showing the flocks striped rods while the animals are breeding. Another such belief is "telegony," which matches back to Aristotle; it alleged that the heredity of a private is influenced not only by his father but also by males with whom the feminine may have mated and who have caused previous pregnancies. Even Darwin, as late as 1868, seriously discussed an alleged case of telegony: that of a mare mated to a zebra and subsequently to an Arabian stallion, by which the mare produced a foal with faint stripes on his legs. The simple explanation for this result's that such

stripes occur naturally in some breeds of horses.

Conclusion

All these beliefs, from inheritance of acquired traits to telegony, must now be classed as superstitions. They do not get up under experimental investigation and are incompatible with what's known about the mechanisms of heredity and about the remarkable and predictable properties of genetic materials. Nevertheless, some people still cling to these beliefs. Some animal breeders take telegony seriously and don't think of purebred the individuals whose parents are admittedly "pure" but whose mothers had mated with males of other breeds.

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