TRANSIENT AND BALANCED POLYMORPHISMS

Polymorphism

Transient polymorphism

The most famous example of transient polymorphism is the _______________ in England. The light-colored form of the moth, known as *typica*, was the predominant form in England prior to the beginning of the industrial revolution.

Around the middle of the 19th century, however, a new form of the moth began to appear. The first report of a dark-colored was made in 1848. By 1895, the frequency in Manchester had reached a reported level of 98% of the moths.

The industrial revolution resulted in

This type of transient polymorphism is known as _______________________

The Clean Air laws resulted in
Balanced polymorphism

**Sickle Cell Disease**
Malaria is an infection by the parasite *Plasmodium falciparum* that causes cycles of chills and fever. The parasite spends the first stage of its life cycle in the salivary glands of the mosquito *Anopheles gambiae*.

**Glucose-6-Phosphate Dehydrogenase Deficiency**
G6PD deficiency affects 400 million people worldwide. It causes life-threatening hemolytic anemia, in which red blood cells burst. However, it develops only under specific conditions—eating fava beans, inhaling certain types of pollen, taking certain drugs, or contracting certain infections.
Phenylketonuria (PKU) is an inborn error of metabolism in which a missing enzyme causes the amino acid phenylalanine to build up, with devastating effects on the nervous system.

**Tay-Sachs Disease**
Carrying Tay-Sachs disease may protect against tuberculosis (TB). In Ashkenazim populations, up to 11 percent of the people are Tay-Sachs carriers.

**Cystic Fibrosis**
Cystic fibrosis is so common—the anatomical defect that underlies CF protects against diarrheal illnesses, such as cholera. Cholera bacteria causes diarrhea, which rapidly dehydrates the body and can lead to shock and kidney and heart failure.