be accounted for, as far as I have studied them, in any other way. The removal of a tremendous thickness of ice from the White Mountains would naturally require crustal readjustment of no small order, and hence a large earthquake or several of them would not be strange.

The evidences for an earthquake as the principal cause of the confusion in Lost River are: slickenside-like patches on a joint block over which another block had violently slipped; lateral movements among the blocks; the pell-mell manner in which the blocks are heaped; the great rock fall from the cliff, which probably came simultaneously with the shock in the river; the inadequacy of frost action to explain all of the confusion; and the elimination of the disruptive force of a moving glacier.

Although this evidence, positive and negative, does not prove that there was an earthquake in Kinsman Notch, it gives good ground for believing that there was such a shock. I have not overlooked the possibility of a local shock due to the rock fall itself. The effects observed appear too great for the vibrations a rock fall would be expected to produce.

I am greatly indebted to Dr. Philip W. Ayres, Forester of the Society for Protection of New Hampshire Forests, for guiding me to several important caverns which otherwise I must have overlooked.

ROBERT W. SAYLES
HARVARD UNIVERSITY

AN ANALYSIS OF THE FACTORS CONCERNED IN THE HEREDITY OF COLOR IN TUMBLER PIGEONS[1]

WHEREAS the usual methods for study of heredity serve only to show us the relation of one character to another, this work is an attempt to give our terms concerning heredity of color a real representation in the anatomy and physiology of the bird.

Some of the factors identified in these birds by breeding experiments follow: Red (*R*), Black (*B*), Intense (*I*), Spreading factor (*S*).

The *R* factor (in absence of *B*) is associated with the formation of a melano-protein pigment, distinctly (pigeon) red in color, easily soluble in hot 4 per cent. sodium hydroxide. This pigment is found in reds and yellows. When *B* is present the chemical processes in the skin are profoundly changed, and a dead black exceedingly insoluble pigment is formed. *B* is completely dominant to *R*.

The effects of factor *I*, as seen macroscopically, are quantitative only. When *I* acts on red pigment there is 3.5 times more pigment formed, than when *I* is absent. Acting on black pigment *I* has a value of about 3. The physical form of the pigment is also influenced by *I*. In its absence red pigment exists as irregular masses, when it is present red pigment takes the form of small spherical granules about .4 micron in diameter, etc. On the other hand black pigment exists as spheres even in absence of *I*. When *I* is present black pigment sometimes may exist as rods.

The spreading factor *S* effects a uniform distribution of pigment throughout the barbule. When this factor is absent the pigment is aggregated in clumps, near the center of each barbule cell. This condition changes black to blue and dun to silver. The *S* factor also has an influence on granule form—and this influence varies with the presence or absence of *I*.

There is apparently a far greater mutual modification and interaction of factors in these birds than formulæ derived from external appearance alone indicate.

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[1] Abstract of a paper read before the American Society of Zoologists, Cleveland, January 1, 1913.

A NEW WALNUT

I THINK it desirable to place before the public the fact that I have been growing for eight or ten years a walnut hybrid originating from seed of *Juglans californica* which is a hybrid between that species and some tree, probably a *Quercus* of evergreen habit. As this new form comes true from seed and may be propagated indefinitely, it is worthy of a

specific name. I therefore take this opportunity of giving a few definite characterizations. A lengthy and detailed description will be issued later.

Juglans quercifolia, n. sp. The tree has a habit of growth of a *Quercus,* and in second generation forms it is more or less evergreen, that is the leaves fall late in the season and develop early in the spring. The leaves are trifoliate or unifoliate and the leaflets are circular and very distinct from those of the mother, *Juglans californica.* When there are three leaflets the terminal one is usually the larger. The tree bears nuts similar to those of the mother. The limbs have a small pith cavity which is closely septate. The catkins frequently appear on last year's wood in pairs and are closely approximate, the posterior is usually the shortest at a given date. The color of the new foliage is a darker green than is that of the mother.

Newton B. Pierce

SOCIETIES AND ACADEMIES

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

A special meeting of the society was held in room 43 of the new building of the National Museum at 4:30 P.M., April 1, 1913, the president, Mr. Stetson, in the chair.

Dr. J. H. Gore, who has recently returned from a visit to the King of Siam, read a paper on "Siamese Life and Industries," profusely illustrated by lantern slides. The former included fine basketry, bronze vessels, silver vessels, matting, textile fabrics of silk and other material and hammered silver ware of admirable workmanship, the method of production being to fill a silver vessel with sand and hammer in the surface from the outside to form the ground, leaving the decorative human figures in series (beside other ornaments) in high relief. Usually the figures represent some mythological story. Dr. Gore's lantern-slide pictures of Siam included many farm-scenes, illustrations of games, festivities and elephant-capturing and views of the city of Bangkok, the aquatic human life of its rivers and canals, the palace, imperial crematories and temples, one of the latter being an exceedingly beautiful rock cavern temple of great renown.

Dr. Gore explained that the teak-wood forests and rice culture are among the chief resources of the country, most of the ship-decks of the world being supplied from the former, now managed by an expert forester, while the export of rice is very great, about seventy rice mills of modern equipment being operated in Bangkok, beside, a large amount of similar work done by more primitive methods and appliances throughout the country. The soil is of the highest fertility and unequaled depth in the main valley of the kingdom. There are about eighty miles of good roads around Bangkok and the streets of the city are well made, modern street-car lines running on some of them: but the remainder of the country is practically without roads.

The late king was notable for divers modern and enlightened reforms, such as freeing slaves, relinquishing the royal ownership in the land in the favor of those who had been long in occupancy and use of it, waiving the exemption of the royal lands from taxation and compiling and publishing an edition of the Buddhist scriptures, which he supplied to the libraries of the world.

The inhabitants of Cambodia, he said, are nearly of the same stock of the Siamese, but regarded as inferior by the latter people, whose language is nearly akin to the Sanscrit. The human images before their temples are not idols, but for ornament. There is a flame-like upward aspiring tendency in their decorative work. No magical or religious importance is attached to white elephants, so called, which are albinoes, white only in patches; but these are regarded as rarities and curiosities and as such are given to the king.

W. H. Babcock,
Secretary

PHILOSOPHICAL SOCIETY, UNIVERSITY OF VIRGINIA MATHEMATICAL AND SCIENTIFIC SECTION

The sixth meeting of the session of 1912–13 of the Mathematical and Scientific Section was held March 17.

Professor W. H. Echols read a paper entitled "On the Root of a Monogenic Function inside a Closed Contour along which the Modulus is Constant."

Professor Wm. A. Kepner read a paper on "The Food Reactions of *Amœba Proteus,*" by Mr. Wm. H. Taliaferro and himself.

Wm. A. Kepner,
Secretary

University of Virginia