B.t.u. per sec. per cu. ft., so that finally we have for the thermal conductivity of basalt, $k = 0.0000227$ B.t.u. per ft. cubed per deg. F. per sec., or in metric units $k = 0.00549$ gram cal. per cm cubed per deg. C. per sec., which agrees with the values of specific conductivity of granite, continental rock, basalt and sandstone, as quoted by Joly (*op cit.*, p. 72). That is to say, radioactivity alone *can* account for the known temperature of the earth's crust down to 8,000 feet.

Calculations of temperature in the earth's crust made with the two foregoing equations check exceedingly well, on the whole, with the temperature measurements that have been made by Van Orstrand, Hallock and others (Darton, *op. cit.*) on the world's deepest wells. Care must be exercised in applying the formulae to oil and Artesian wells, unless the depth of the source of flow be accurately known, for, if the seepage is from a greater depth than the bottom of the well, the temperature of the discharge will be far higher than the computed quantity. On the other hand, if the well taps a fissure short of the bottom, the temperature of discharge will be less than the computed value. Departures from the computed values may be attributed also to variations in the thermal conductivity of the rock. Of course the constants may be suitably modified for local conditions.

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A BLUE MUTATION IN THE RAT (MUS NORVEGICUS)

IN a genetic study of hypotrichosis or so-called hairlessness in rats two young in a litter of nine were found to be colored unlike any that had appeared before among more than 2,500 individuals. They were light yellowish or reddish gray in color, produced apparently by a dilution of the black.

All our stock went back on the paternal side to one "hairless" male captured at Farmington, Illinois, and on the maternal side to albino females from the Wistar Institute. The immediate father was unknown, though it was one of six males which together with the mother had been used by the division of physiological chemistry in some experiments with cystine and after being returned were held as stock animals. Only the one litter was produced, though the female was kept for twelve months after producing the litter with the unusually colored young.

Both these young were females and one died at five weeks of age. The other female was mated to both intense colored and albinos, intense colored progeny from both kinds of matings being produced as indicated in Table I.

TABLE I

MATINGS AND PROGENY OF DILUTE FEMALE

Mated to	Number of young	Color of young
Intense	8	Intense
Albinos	12	Intense

That this character is not in the color series is shown by the production of intense from matings with albinos.

Subsequent matings of heterozygous intense inter se, heterozygous intense with dilute, and dilute with dilute were made with results as given in Table II.

TABLE II

VARIOUS MATINGS INVOLVING DILUTION

Mating	Number of progeny	Color	
		Intense	Dilute
Dd* × Dd	52	36	16
Dd × dd	128	63	65
dd × dd	5		5

* d = dilution, D = allelomorph (intensity).

Agouti, non-agouti, hooded and non-hooded were other factors involved in these crosses, but results of these will be left for consideration after linkage studies are complete.

When agouti is absent the color of the mutant is very similar to the dilute black or "blue" of mice, rabbits, cats, dogs and *Mus rattus*. Dr. W. E. Castle mated a dilute gray male which I sent him to red-eyed yellow females of the formula rrCcHhaa. From these matings the following kinds were produced:

Gray self
Gray hooded
Black self
Black hooded
Albinos

The male was probably of the formula RRCcHhAa and homozygous for the new factor which tentatively is designated d. The red-eyed females would be homozygous for D.

Since this color had not previously appeared among some 2,500 descendants of the original stock, it appears probable that this is a recent mutation, though being a recessive it may have been carried some time before appearing.

In the light of the fact that it has not been reported, as far as I can discover, it is probably a new mutation in the rat, which causes a dilution of the black producing blues analogous to the so-called blues found in some other mammals.

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