subject to mutation—that is to say, in a given race individuals
may occur which differ from their fellows in their genetic con-
stitution. Individuals frequently occur which possess new struc-
tural or functional features; and these features, though often the
transient peculiarities of the individual only, are in some cases
transmitted to the offspring for many successive generations. There
is reason to suppose that this phenomenon occurs in nature as well
as in laboratory cultures. The progeny of an organism which varies
may thus constitute a new race, in which every individual possesses
the new character."

The author defines mutation as a permanent change, however
small it may be, which takes place in a micro-organism and is trans-
mitted to subsequent generations. These mutations are classed as
structural and physiological,—the latter comprising those in which
the power of producing pigments, ferments, etc., is seen.

In some instances the mutations seem to be caused by chem-
ical or other conditions of the medium; in others, in which effort
was made to secure uniformity of medium, changes still occurred
where it seems necessary to assume that the conditions of the
changes were primarily internal.

DIFFERENTIATION IN CHROMOSOMES

Agar (Q. J. M. S. Dec. 1912) reports studies of chromosomes
in Lepidosiren in which he shows that there is a widespread ten-
dency for chromosomes to be constricted or to segment trans-
versely. This is especially noticeable when the chromosomes are
short in comparison with their length. The point at which this con-
striction takes place in a given chromosome is constant for that
chromosome, and is the point at which it most readily tends to
form the angle of the V when that form is taken. The author be-
lieves that the constancy of this position denotes a constant dif-
ferentiation of the chromosomes in the long axis. The presence
of the constrictions is not, however, necessarily to be considered as
evidence of bivalency or of a future division in that plane.

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