cal holder is desirable. All that is required is an
adjustable clamp mounted on a base. Several such
clamps have been improvised from apparatus found in
the laboratory. A serviceable clamp was made from
the small brass, standard-threaded parts procurable
at any electric-fixture counter. This assembly included
a base, one or more ball-and-socket connections and a
short piece of threaded tubing with a nut. A hole
drilled through the tubing received the pin-vise, which
was then clamped by screwing down the nut.

Adjustments for grinding are made under the
binocular. The oilstone must rest on a firm base.
The needle point is placed on the stone and, under
the pressure necessary for proper grinding, is adjusted to
the desired angle. Grinding is accomplished by moving
either the stone or the whole needle-clamp assembly.
The latter may be picked up and turned as a whole
for inspection of the needle as often as desired without
disturbing the grinding adjustment.

Needle-blades of any size, ground to a variety of
shapes, may be fitted to the micro-scissors, enlarging
their usefulness for many different types of work.
The models described were made in the machine shop
of the Harvard Medical School.

**THE PREPARATION OF DOPA-MELANIN**

The work of Bloch, Raper and their co-workers
has shown that natural melanin is most probably
formed by the oxidation of tyrosine. The first oxidiza-
tion product is dopa (1,3,4-dihydroxyphenylalanine);
dopa is oxidized to a red compound which, in the
presence of oxygen, spontaneously changes to melanin
(dopa-melanin).

Bloch and Schaaf observed that dopa spontaneously
oxidizes in alkaline solution to form dopa-melanin.

50 ce of a 0.01 N NaOH solution is saturated with
dopa, and the resulting solution is placed in a 75 ce
test tube. Air, saturated with water (to prevent ex-
cessive evaporation), is bubbled through this solution.
The solution, which turns pink when the dopa and
NaOH are mixed, quickly turns jet black. After 2
days, the melanin solution is made acid by the addi-
tion of 2 ce of 0.5 N HCl. The insoluble melanin is
centrifuged down and the precipitate is washed 10
times with 10 ce portions of 0.005 N HCl. The
melanin is now suspended in distilled water and trans-
ferred to an evaporating dish. The HCl is removed
by evaporation to dryness on a water bath, after which
the melanin is further dried over P₂O₅.

Thirty-five to forty per cent. of the weight of the
original dopa can be recovered as melanin by this
method. Florence, Ensolme and Pozzi have stated
that the formation of melanin from tyrosine, using
tyrosinase, is a limited reaction; the weight of melanin
obtained in their experiments was about 40 per cent.
of the initial weight of the tyrosine.

If stronger NaOH solution is used in making dopa-
melanin, some of the pigment apparently is converted
to a red-brown substance which is soluble in HCl.

It seems likely that natural melanin contains poly-
peptide side chains which are not present in synthetic
melanin. Abderhalden and Guggenheim have de-

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