posed to desert sun, no further shrinkage will occur by leaving the airplane in the hot sun.

For the tautening process a hand-held source of controlled heat is required. A household steam iron is an excellent and safe source of controlled heat - 212°F at sea level. At altitudes of 3,000 ft. or higher, another source of heat must be used - since water boils at a lower temperature at high altitudes. Hot air guns or electric hot plate elements are satisfactory if safeguards are provided. Hot air guns or electric hot plate elements should have their output checked by a reliable thermometer and adjusted or held at a distance to produce approximately 200-225°F. This is accomplished by placing a reliable thermometer at a measured distance (by ruler) from the burner and waiting until the thermometer reaches a stabilized reading. A hand-held electric hot plate of approximately 650 watts is most satisfactory, and a measured distance of approximately 2″ produces 200-225°F. An iron set on "WOOL" temperature may be used in direct contact with Ceconite to accomplish final shrinking. The "iron in direct contact" method is also satisfactory in spot removal of wrinkles. Where Ceconite covers large areas of metal or wood, the steam iron method is most satisfactory. Where seams occur, shrinking with electric hot plates should be accomplished slowly in order to keep seams straight. For initial shrinking of the fuselage and wings it is preferable to utilize a two man team, each equipped with hand held electric hot plates and working on opposite sides.

Due to the low heat output, electric heat lamps of less than 500 watt rating are generally slow and unsatisfactory.

NOTE: Whichever heat source is employed, best results are obtained by keeping the heat source in motion at rate of approximately 5″ per second. A motion akin to ironing is most satisfactory. First, side to side, then covering the same area in a top to bottom ironing motion to insure uniformly shrinking all areas.

Care must be taken never to heat this fabric in excess of 450°F., as the fabric melts and strength decreases seriously. If through error this fabric is heated above 450°F., the destroyed area will lose its cloth weave and assume a clearly deteriorated celluloid-like texture.

Due to the ease in shrinking Ceconite by heat, care must be taken with sailplanes and light frame aircraft not to heat shrink the covering in excess of final desired tautness. Nitrate and non-shrinking Butyrate dopes will generally not produce further measurable tautness. However, regular Butyrate dopes will continue to tauten over a period of months and the envelope must be somewhat looser to allow for further shrinkage when using Butyrate dope.

For covering plywood surfaces Ceconite 103 is preferred. Specifically, the plywood finishes will be first refinished and sealed with an FAA approved wood sealant. Next, apply four coats of aircraft dope (nitrate or butyrate) to the plywood surface. After the dope dries, attach Ceconite 103 to the plywood surface using airlac in a 1″ wide strip on the edges. When dry, shrink Ceconite 103 with a steam iron to a glove tight fit. Finally, brush on two coats of clear dope and complete the finish (See Annex "A").

Fabric Finishing: Any finish suitable for cotton aircraft fabric can be used on Ceconite without difficulty. The "grain" in Ceconite 101 is very difficult to fill with nitrate dope. The 103 material, however, fills completely with 10 coats of nitrate and the standard 13 coat finish (for cotton) should come up to a mirror finish after hand rubbing.

The quotation following is from the manufacturers' manual (Ref. 2):

"Experience gained as a result of approximately 200 Ceconite coverings indicates the following finishing method to be most satisfactory in addition to effecting a savings in labor and dope. The resulting finish is smooth and hides most of the fabric weave.

Step 1. At least 4 brush coats (preferably 6 coats) of Nitrate dope cut to a mixture of two parts dope to one of thinner.

Step 2. Very light sanding with #320 wet or dry sandpaper.

Step 3. Three coats of aluminized acrylic aircraft enamel or . . . Three coats of aluminized synthetic aircraft enamel or . . . Three coats of aluminized Nitrate or Butyrate dope (where dope finish is desired.)

Step 4. Very light sanding with #320 wet or dry sandpaper - optional.

Step 5. Two color coats of acrylic aircraft enamel or . . . Two color coats of synthetic aircraft enamel or . . . Two or more color coats of pigmented Nitrate or Butyrate dope.

Notes:

(1) It is necessary to achieve dope penetrations of fabrics and thoroughly coat Ceconite fibres on all sides in order to achieve proper adhesion. Nitrate is perferred as having better adhesive qualities to Ceconite than does Butyrate dope, and should be used for Step 1 even if the final finish is to be Butyrate dope.

(2) Ceconite is a smooth monofilament and requires but a light sanding at best.

(3) In Step 3 use 8 oz. alum per gallon for clear enamels or dope. A metalic base enamel may be used, and substituted for the aluminized enamels.

(4) The vapors of these finishes are inflammable and under prolonged breathing can be injurious. Adequate ventilation is essential.

(5) Acrylic base aircraft finishes are a new development and have the most durable finish. Since Acrylic finishes behave somewhat as lacquers they counteract to a small extent the tautening effects of dope. Polishing the surface with rubbing compound will result in added luster.

(6) Butyrate dope is somewhat more fire retardant than Nitrate dope and more durable for a dope finish. However. Butyrate dopes, as contrasted to Nitrate dopes, continue to tauten over a period of months and have slightly more tautening effect. While these dopes have but little overall tautening effect on Ceconite, care should be exercised not to have the covering too taut when using Butyrate dope."

Repairs: Using CAM 18 as a guide, repairs are effected using Ceconite 101 and D-207 hand sewing thread listed in these instructions. Airlac is used for the adhesive and the procedures previously described are utilized. For small patches, Ceconite 101 may be used. On previously enameled (synthetic or acrylic) areas, it is not necessary to remove the enamel. Merely scuff the enamel with #320 sandpaper and Airlac will produce a satisfactory bond.

Annual Inspection: Aircraft covered in accordance with this process should undergo fabric inspection as prescribed in CAM 18 for fabric covered aircraft. Under normal care an airplane covered with Ceconite fabric has three times the life of an airplane covered with conventional cotton fabric. With proper care, this can be the life span of the airplane.

Experience: At the present time, more than 200 aircraft have been recovered with Ceconite 101. No operational difficulty has been en-

(*Concluded on Page* 12)