vary widely in their outputs, pressures, patterns of nozzles, and physical construction, and the concentration must match these characteristics.

STRIPPING OR EXHAUSTION

Part of the arsenic in the old dips was in true solution and the strength did not progressively fall as dipping continued and the level in the bath fell. Modern dips are suspensions rather than solutions, and the active particles or droplets are progressively removed by the wool of the sheep passing through. This is known as stripping or exhaustion. Hence the need for "replenishing" or "reinforcing" the bath or sump at frequent intervals to keep up the concentration of active ingredients. If this is allowed to fall too far, a complete kill of parasites will not be obtained, and most of the expense, time, and trouble of dipping will be wasted.

Replenishment means the raising of the level of the used wash in the bath by addition of both concentrate **and** water, but usually at a higher strength than the original wash in the bath or sump.

Reinforcement means the adding of concentrate only to the bath without addition of water. Both methods are to compensate for the exhaustion that has taken place, and here again the makers' instructions must be rigidly followed.

One of the advantages of tip spraying is the avoidance of stripping, because no fluid is returned from the sheep; it is all fresh and full strength.

CONDITION OF SHEEP

Dipping sheep with open shear cuts is inviting trouble in the form of a potential outbreak of blood poisoning. Nearly all dips now contain bacteriostats to prevent the infection of cuts and scratches, but there are limits to their powers, particularly when the dip is old and dirty. Before bacteriostats came into common use there had been a good deal of trouble with lameness after dipping, which was due to infection of scratches and abrasions of the feet and legs.

Bacteriostats are sometimes omitted from materials to be used in shower dips, and tip sprayers because the dip is not, or should not be, kept long enough for infection to develop. They are not required in dusts. Many dips use copper sulphate (bluestone) as the bacteriostat, and these must not be used in showers or tip sprays, as the copper sulphate would attack the metal; hence the warning on the packet.

At the other end of the scale, tip spraying and dusting sheep with long wool—over 3 months' growth—are frowned on by the makers and not allowed under the Stock Act, as results are likely to be disappointing.

Warnings are given against driving sheep for any distance immediately before or after dipping as a precaution against their heating up and possibly absorbing enough dip to harm them. Dipping in extreme heat is similarly unwise and warned against.

BREAKDOWN OF DIP

Arsenical dips could and did work when they were very old and very dirty; what they did to fleeces and wool values was another matter. Modern dips will not stand this sort of treatment; the actual ingredients are liable to decompose if the dip is kept too long in a dirty state. The makers warn against this and also storing the dip under extreme conditions of heat and cold, again due to the risk of breakdown or separation of ingredients.

Some dips will not mix satisfactorily with hard water; if so, the containers bear a plain warning. Dips badly mixed can stain wool and endanger the health and lives of sheep.

With all dips, even the old arsenical powder types, emphasis has always been placed on complete mixing and constant agitation to keep the ingredients mixed so that every sheep gets its share of active ingredient.

GENERAL

The basic requirement that **every** sheep on the property should be dipped holds today as it has always done. With modern equipment such as tip sprayers it is little trouble to deal with stragglers or with bought-in sheep after the main dipping or even to dip the whole flock twice a year if necessary.

With plunge dipping the recommended time of immersion was at least a minute, and with power sprays or showers it was several minutes, the aim being to achieve complete wetting all over and down to the skin. With surface methods of application it is quite impracticable to give a time limit, and complete wetting is no longer required, thanks to the wonderful ability of modern insecticides to migrate or transfuse down the wool to skin level. What is still required, however, is complete coverage, and enough of the dip remaining in the wool and eventually reaching the skin to do the job.

The latest insecticides are near-miracles of potency against parasites. Users should not unreasonably expect them to perform 100 per cent efficiently if they are abused by disregard of instructions and by attempts to break records in speed of dipping.