CHAPTER VII
BLEACHING

The other section of preparatory work for plait is that of Bleaching. The early efforts in this direction were of necessity very crude, and it is probable that imitation of the process used in some other industry, rather than invention for the particular commodity, provided the primary steps in straw bleaching. Naturally, the first thing that would occur to anyone would be to wash with water, and any grower of cereals, knowing the bleaching power of the sun, would probably combine these two elements in the endeavour to produce a better colour on the corn stalks. Then some attempts would be made with a cleanser such as soap, still utilizing the sun's rays as bleacher after cleaning. As Italy is probably the home of bleaching operations, it is not difficult to imagine that, with the sulphur bleaching effects so easily seen round the Bay of Naples and in Sicily, it was not long before the fumes of sulphur were pressed into the service. And crude as these elements are, although the processes have radically changed, they remain practically the fundamentals of bleaching to-day.

About seventy years ago, Mr. Welch, of the firm of Welch & Sons, of Luton (one of the oldest established houses in the trade and still in existence), patented a bleach which was called the "Luton Bleach." This consisted of carefully washing the plait with soap and water in wooden vats; after careful rinsing it was immersed in a bath of weak oxalic acid and water (some bleachers subsequently added other chemicals), and
then while wet subjected to the fumes of sulphur in a hermetically closed wooden chest. Hanging out in the sunshine to dry, and another sulphur fumigation before "bunching" (as the tying up of plait into bundles is termed), completed the operation. With chip plaits, and fifty or more years ago these were very fashionable, a similar process was usual, but the bleaching bath contained, as well as oxalic acid, kali, tartar, and a good many other similar ingredients, according to the requirements of the user. In those days nearly all bleaching was done by the actual manufacturer of the hats, it was only when the trade began to move by leaps and bounds that works entirely for bleaching purposes were established. For many years these methods of bleaching were the only ones employed on plaits for hats, and they produced excellent results on really good coloured straws; but failed entirely to eliminate any faulty parts, and further, in order to get the finest colour, two more sulphur fumigations were necessary; one when the hat was wet from the gelatine employed to stiffen it, and the other a dry "steam" (as the fumigation was called) before putting the finished hats into the cases for dispatch.

This custom of bleaching, in a patriarchal way in one's own tent, brought out considerable inventiveness on the part of go-ahead manufacturers, and it was no uncommon thing for some fresh development of bleaching, on one or another plait, to establish the reputation of a manufacturer, who, until his secret leaked out, endeavoured to exploit to the full the value of his superior article. But this kind of bleaching only cleaned and purified, it did not materially alter the natural condition of the article bleached. In the first place manufacturers were not laboratory chemists, and it was the efforts of the Italians, the producers of the
plait which was supplanting the British product, that gave birth to a chemical bleach, which for some time was unrivalled in England. For some years the bleached Italian Pedal of Messrs. Burgisser & Co., of Florence, had no superior, and was for a long period renowned for the purity and beauty of its colour process. But the secret subsequently leaked out, and bleaching establishments in this country soon acquired them, and it was not long before the results obtained here compared favourably with the Italian. For some years this bleach, which not only cleansed and purified the straw, but also changed its actual tone by bringing more into colour line the straws of darker hue, was accepted by the world as the best possible; and one may say that, although later developments have considerably widened the scope of operations, the results of this period, which may be called the intermediate cycle of straw bleaching, were in their way quite equal to any now achieved. The only drawback to this bleach was that really inferior coloured plait could not be made serviceable for white. In the case of chip splints or in the case of cornstalks, only the best and clearest of either of these had been used for plaits for bleaching. This necessitated keeping two stocks of plait, for although the best coloured plait could be dyed black or other shade if necessary, the bad coloured straws could not be bleached, and further, one always had to pay more for the best coloured goods, which although to some extent this is even now the case, owing to the great possibilities opened up by the present bleaching processes, there is not the wide difference in price there used to be.

But at last competitive chemists discovered that the quantity of straw plait required for bleaching was of such magnitude, while the really good bleaching plait was comparatively so small in quantity, that it
would be worth their while to make researches in the direction of a bleach for inferior coloured straws. Between 1885 and 1890 many experiments were made, with naturally variable results. It must not be overlooked, that plaits were still required by the trade to be of a "straw" colour, and the first efforts of the "new bleacher" were towards this end. But the process that gave most promise being actually an oxydization was more in the nature of a dye than a bleach in one respect, viz., that it apparently changed the nature of the material, in fact some of the bleachers to differentiate in the trade between the new process and the old called the later arrival a "White Dye." It was soon found that an extended application of the process would entirely eliminate the varying tonés of mixed "Punta" and "Pedale" straws and would make the plait a perfectly dull white like paper, but at the same time it tended to materially injure the fabric of the straw. There was naturally no demand for any such results, the "paper white" could easily be obtained on "chip" plaits, and the only effect required was to reduce mottled coloured natural plaits to sufficient uniformity of good straw white colour. Moreover, the absolute "deadness" of the white produced took away all the beautiful lustre of the straw which it was desirable to retain; and the weakening of the fibre by the chemical process was entirely inimical to the subsequent proper sewing and finishing of the hat.

However, a process was found that met all requirements as far as lustre and strength were concerned. There was still a tendency to kill the straw colour, but subsequent investigations have reduced that to a minimum, and to-day the bleaches on straw plaits leave nothing to be desired.

As far as chip and Tagal plaits were concerned there
was not the occasion to preserve the natural colours of the fibre. White chip was always required "paper white," and although some of the hemp fibres of Tagal were of a flaxen colour, most of that exported from Japan was distinctly on the white side, and, therefore, from the first, this process of bleaching has been helpful to all plaits made of these two materials.

Moreover, the modern methods are especially adaptable for hood hats, inasmuch as the process dispenses with scrubbing by hand. To Panamas, although previously the colour had been fairly good, the new bleach has been a great help, and has enabled Panamas of fine colour to be universal.

These remarks apply also to the other varieties of Panamas of which, although the method of making may be slightly different, the fibre is almost identical; but when one comes to the Bowen or Curaçoa hoods, their substitutive use has only been possible because of the searching effects of the new process. Before bleaching, these articles are quite unfit to sell for white, and their natural tint is not one that would command a fashionable sale. Since being dyed white, the demand for them has been phenomenal, and for a low priced, coarse-looking hat of a Panama nature, there is at present nothing to take their place.

The natural colour of Javas, Brazilians and Bankoks is such that they are saleable as imported, but although many are thus used, the great majority of them required for white are bleached by the new process, and with very excellently clear results. Javas, being the darkest of the trio mentioned above, can have their colour retained to some extent, giving the finished article almost a perfect straw tint, but Brazilians and Bankoks assume a whiter tone without any tinge of yellow. They, therefore, are very similar to Panamas in colour
appearance, but both of them, being made of flat splints, are lighter in weight.

Yedda, rush, and raffia plaits and hoods are all very amenable to the bleach, and while the two latter present, when bleached, little, if any, lustre, the first named assumes a silky appearance which is most effective.

To sum up, with the modern process, of which there are several modifications, any kind of fabric used for straw hats can be successfully bleached into one or the other tones from straw to paper white, which are regarded as necessary for the highest grade finish.