

of cow's milk, which should be diluted, of course, in accordance with the requirements of the individual infant.

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PERFUMES AND AROMATIC CHEMICALS.

BY ROBERT GLENK.*

(Continued from p. 919, October issue.)

TUBEROSE TYPE.

Tuberose is a member of the lily family with a characteristic fragrant odor. It is native to Brazil and has been introduced into all civilized countries. It is cultivated in southern France on a large scale for the manufacture of enfleurage products and absolutes which are very extensively employed in the perfume industry to develop the fine floral notes in synthetic compositions.

Its cultivation is attended with considerable risk and many times the harvest, which occurs in August and September, is unfavorable and high prices prevail for the natural products.

The synthetic equivalent of the tuberose odor is methyl benzoate or "Niobe oil" of commerce and which has also been detected in the natural flower product. The modifying odor is obtained by the use of methyl anthranilate, methyl salicylate, benzyl alcohol and benzyl acetate.

Jonquil, hyacinth and narcissus are usually considered of the tuberose type of odor although their fragrance is quite characteristic and individual. The flowers are largely cultivated for their natural products in France and harvested in April. The enfleurage and volatile solvent products are both made. Phenylacetic aldehyde is the odor base employed in making perfume reproductions or perfume oils.

VIOLET TYPE.

The violet has been esteemed as a favorite flower from time immemorial. Sweet violets are highly prized for their delightful fragrance everywhere and are largely cultivated in the south of France for the extraction of their fragrant constituents.

The plant flourishes in the South and the variety called Mexican violet bears a profusion of large blossoms which are very fragrant and are quite extensively grown for florists' use.

The perfume is extracted by enfleurage, maceration and by volatile solvents but the yield is so small that these products are unusually expensive, the price of violet absolute having been quoted at \$750.00 per pound.

Violet perfume is perhaps the most popular of all the floral essences. This fact is accounted for by the use of the synthetic "Ionone" which was the first perfume synthetic put in the market. It is so powerful that only small quantities are needed to make a very satisfactory product and the price varies according to the flowery finish given to the particular perfume. Only the highest priced perfumes have even a trace of the natural violet product.

Ionone is a condensation product of citral from lemon grass oil and acetone, the preparation of which requires considerable skill and careful purification at the various stages to secure a fine quality of products. Numerous substitution and addition products of Ionone are now on the

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