

MOVEMENTS OF THE EARTH.

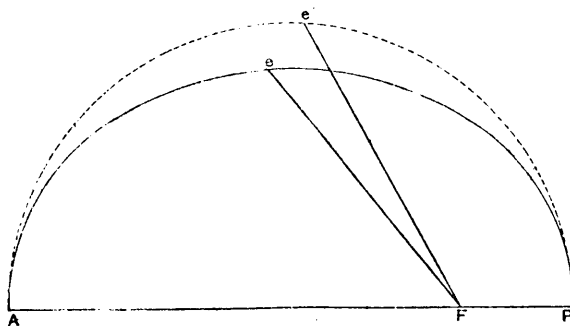


FIG. 53.—Diagram explaining mean anomaly and true anomaly.

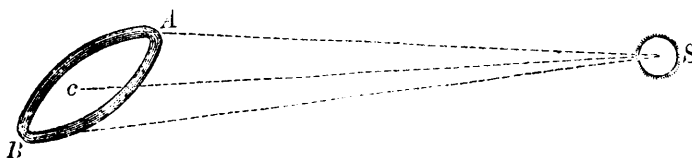


FIG. 54.—The attraction of the sun on the earth's equatorial protuberance.

aromatics, are so well known that I will not dwell upon them. Suffice it to say that the oil to be used in compounding perfumes should always be the finest English drawn, and re-distilled.

The crude oil, and also that known as oil of clove stems, can be detected by the dark color, and by giving a "paon" blue color when shaken up with three times its volume of alcoholic solution of ferric perchloride, and also a deep violet if shaken up with some reduced metallic iron. Oil of pimento might be used instead of oil of cloves, and when the latter is given in a recipe, using half oil of cloves and half pimento, a very good blend is the result. I may also mention that I find an addition of 2 per cent. of ammoniated alcohol to all the spice oils resists their volatilization.

HELIOTROPE.—This well-known perfume is often prepared from the flowers of *Heliotropium Peruvianum*, or from the British variety, as one would suppose, considering the powerful odor these flowers emit; a combination of vanilla and violet being the most common substitute.

JASMIN. obtained from two species of *Jasminum*, *J. officinale* and *J. Grandiflorum*, of the natural order of *Jasminaceae*, which also supplies the lilac (*Syringa*). The jasmine, or jessamine, is a small bush cultivated in the garden and flower-farms of Grasse, to an extent greater than any other flower, although it is the most difficult to bring to perfection, being very sensitive to changes of temperature and soil. The perfume is greatly increased by the heat of the sun, and a rainy and dull summer between the months of June and October, when the shrub flowers, is as great a disaster to the Grasse perfumer as a wet harvest is to the English farmer. The essence obtained from jasmine is used as a basis for almost every compound scent, and I always form an idea of the status of the Grasse manufacturer by the quality of his jasmine pomade and essence, for, unless very carefully prepared, rancidity will quickly take place.

LAVENDER.—The natural order *Labiatae* embraces several shrubs which yield very powerful volatile oils used for perfumery and flavoring, and also possessing medicinal properties in the forms of stimulants, carminatives, aromatics, etc. There are three distinct qualities of the oil; two distilled from *Lavandula vera*—Mitcham, or English, and French, principally from Les Alpes Maritimes; and that from *Lavandula spicata*—a very inferior sample, called "oil of spike." The first named—the Mitcham—at the present time, commands a very high price—about as many shillings an oz. as the French oil is

worth per lb.—and there is every prospect of still higher prices, as year by year, when passing through Mitcham and the adjoining villages of Wallington, Carshalton, Beddington, Waddon, Cheam, and Sutton, I have noticed fields once under lavender and mint cultivation fallen prey to the ever-increasing inroad of the speculating builder. Ten years ago there were about 350 acres of lavender; now, I believe, there are not 150 acres. It is also grown at Market Deeping and a few other places—to what extent I am not prepared to say; and I should certainly consider it would pay any speculator to direct his attention to lavender cultivation.

In England the flowers are collected in July and August, when in full bloom, and are generally distilled with the stalks as gathered, the yield being about 20 oz. for every 100 lbs. Take this for granted, and an average crop of 800 lbs. per acre gives 160 oz., or 10 lbs. Now, suppose the increased cultivation should bring down the price of English oils to 100s. per lb.; this shows a value of £50 an acre, and at the rate of 50 per cent. for working expenses, stilling, rent, etc., I believe a very good return could be made. A friend of mine who some five years ago laid down about a quarter of an acre of garden ground has been fully satisfied by the amount realized by the sale of the flowers, even from so small a plantation.

The exotic oil is obtained principally from the south of France, also from Northern Italy, Sicily, and Algeria. The department of Les Alpes Maritimes produces the finest samples. The highest hill-slopes grow the nearest approach to the Mitcham.

The different qualities exported by the Grasse manufacturers are almost as numerous as the letters of the alphabet, and are distinguished by such terms as essence de lavande cultivée, lavande du Piedmont, lavande des fleurs mondées, lavande éperle, lavande fine, lavande 1^{re} qualité, 2^{me} qualité, etc. In the neighborhood of Avignon I noticed some lavender growing, and was told the product was of rather inferior quality, the country being low and flat, and the soil poor. Mont Ventoux, in the same vicinity, which I traversed in my holiday tour, grows lavender of very fair quality; the altitude is about 400 feet above sea level.

Lavender oil is used in perfumery largely as lavender water, combined with orange and rose water, and in essences best combined with oil of cloves and benzoic acid.

Essence d'aspic is the distillate of the wild flowery plant *Lavandula spica*, and is rarely found free from adulteration, a certain quantity of prepared turpentine being added in accord-