Section 10: The unit of Luminous Intensity is the International Candle, such as has resulted from international agreement between the three national standardizing laboratories[1] of France, Great Britain and the U. S. A. in 1909.

This unit has been conserved since then by means of incandescent electric lamps in the laboratories which continue (or remain) charged with its conservation.

Section 12: The unit of Luminous Flux is the Lumen. It is equal to the flux emitted in a unit solid angle, by a uniform point source of one international candle.

Section 13: The practical unit of illumination is the Lux. It is equal to one Lumen per square meter, or it is the illumination at the surface of a sphere of one meter radius due to a uniform point source of one international candle placed at its center.

As a consequence of certain recognized usages, the illumination can also be expressed by means of the following units:

Using the centimeter as the unit of length the unit of illumination is one lumen per square centimeter, and is called the Phot. Using the foot as the unit of length, the unit of illumination is one lumen per square foot, and is called the Foot-Candle.

FRENCH VITAL STATISTICS FOR 1921[1]

THE secretary (minister) of labor recently published the official vital statistics for France for the year 1921. It is an unfavorable report from every point of view. The number of births is below that of 1920, while the number of deaths has increased; the number of marriages has also decreased. The excess of births over deaths, amounting to 159,790 in 1920, or forty-one for each 10,000 inhabitants, decreased in 1921 to 117,023, or thirty for each 10,000 inhabitants.

A comparison of the number of births and deaths for the years 1921, 1920 and 1913 is shown in the following table:

Year	Total Population	Births	Deaths	Excess of Births
1921.....	39,209,766	813,396	696,373	117,023
1920.....	39,209,766	834,411	674,621	159,790
1913.....	41,476,272	790,355	731,441	58,914

The number of marriages, which reached an unusually high figure in 1920 (623,869), dropped in 1921 to 456,221, but it is still appreciably higher than the number recorded in 1913 (312,036).

An examination of the report brings out the fact that whereas the number of living births for each 10,000 inhabitants in 1920 was 213, it fell in 1921 to 207; in 1913, it was 191. The relative proportion of deaths has risen from 172 for each 10,000 inhabitants in 1920 to 177 in 1921, reaching about the same proportion that was recorded in 1913—176 for each 10,000 inhabitants.

In 1921, sixty-seven of the French departments showed an excess of births over deaths, the total amounting to 127,654, as compared with seventy-three departments in 1920. On the other hand, twenty-three departments showed an excess of deaths over births, the total amounting to 10,631, as against seventeen departments in 1920. The seven departments which, in 1920, showed an excess of births over deaths but in which the balance in 1921 was on the side of the deaths are: Aube, Cher, Côte-d'Or, Maine-et-Loire, Orne, Seine-et-Marne and Seine-et-Oise. In the department of Isère, which in 1920 showed an excess of deaths over births, the excess of births over deaths in 1921 was 292. During the year just preceding the war (1913), an excess of births over deaths amounting to a total of 86,768 for fifty-two departments was recorded, and an excess of deaths over births amounting to 27,854 was found in the thirty-eight other departments.

The departments in which the excess of births over deaths, in 1921, reached the highest figures are: Nord, Seine, Pas-de-Calais, Finistère, Moselle, Bas-Rhin, Seine-Inférieure, Côtes-du-Nord, Morbihan, Haut-Rhin, Aisne, Meurthe-et-Moselle, Ardennes and Bouches-du-Rhône. In all these departments, with the exception of Aisne, Meurthe-et-Moselle and Ardennes, the excess of births in 1921 was much less than in 1920.

The departments in which the excess of deaths over births, in 1921, was highest are: Yonne, Var, Gers, Lot, Lot-et-Garonne, Maine-

[1] These laboratories are the Laboratoire Central d'Electricité, Paris, the National Physical Laboratory, Teddington, and the Bureau of Standards, Washington.

[1] From the *Journal* of the American Medical Association.

et-Loire, Nièvre, Hautes-Pyrénées, Seine-et-Oise, Puy-de-Dôme, Vaucluse, Cher and Allier. In all these departments, with the exception of Puy-de-Dôme and Allier, the excess of deaths in 1921 was greater than in 1920; three of these departments, Maine-et-Loire, Seine-et-Oise and Cher, had shown an excess of births over deaths in 1920.

In 1920 (the figures for 1921 are not as yet available), Germany, exclusive of Wurttemberg and Mecklenburg, showed an excess of births over deaths amounting to 623,367; in 1919, the excess of births was 282,230, and in 1918 there was an excess of deaths over births of 299,885. In England, the excess of births for 1920 was 491,781, and for 1921, 390,355.

PRODUCTION OF DYES IN THE UNITED STATES

THE United States Tariff Commission reports that the production of dyes in this country declined last year far below that of the previous year, ascribing as the reasons the loss of much of the country's export trade, the general business depression, and the carrying over of large stocks from the previous year.

The commission states that the progress made during the year includes the production in the United States for the first time of a number of dyes of greater complexity and more specialized application. Many of these dyes, which are of secondary importance from the point of view of quantity consumed, are essential in the dyeing and printing of numerous fabrics. These additions to our list of dyes represent an added step toward a well-rounded coal tar chemical industry. The development of many of these new products is a highly technical achievement.

There were 201 firms engaged in the manufacture of coal tar derivatives in 1921. The output of dyes by seventy-four firms exceeded 39,000,000 pounds, a decrease of 56 per cent. from that of 1920. The sales in 1921 exceeded 47,000,000 pounds, valued at more than $39,000,000, and exceeded production by 22 per cent., indicating that a part of the domestic consumption for that year was supplied from the large stocks carried over from the previous year's abnormally high production. The sales of dyes for 1921 exceeded the imports of 1914, when the United States imported nearly 46,000,000 pounds and produced over 6,000,000 pounds of dyes from German imported intermediates.

The average price of all dyes in 1921 was 83 cents per pound, compared with a value of $1.08 per pound in 1920 and a value of $1.26 for 1917. The total quantity of dyes imported in 1921 was 3,914,036 pounds, valued at $5,155,779, or $1.32 per pound, compared with 3,402,582 pounds, valued at $5,763,437 in the previous year. The imports of 1921 represent 10 per cent. of the production and about 8 per cent. of the total dye sales during the year. Germany supplied about 48 per cent. of the total dyes imported during 1921; Switzerland, 41 per cent.; England, 7 per cent., and all other countries, 4 per cent.

Exports of domestic dyes for 1921 show a decrease of nearly 79 per cent., compared with those for the previous year. The value of our exports for 1921 was $6,270,139, compared with $29,823,591 in 1920. The total exports of dyes for 1921 were less than for the year 1917, when the first considerable expansion of the domestic dye industry from pre-war conditions occurred.

The total production of synthetic organic chemicals other than those derived from coal tar, which are used as medicinals, perfumes, flavoring ingredients, solvents and in numerous industrial processes, was 21,545,186 pounds; the sales amounted to 16,761,096 pounds, valued at $13,746,235. The development of this industry in the United States has been similar to that of the dye industry, as our supply of synthetic organic chemicals was controlled primarily by Germany prior to the war.

FELLOWSHIPS FOR MEDICAL RESEARCH

IT is stated in *Nature* that Junior Beit Memorial Fellowships of the annual value of £350, and tenable for three years, have been awarded by the trustees to the following, the subject and place of research being given after each: Mr. E. B. Verney: The physiology and pathology of urinary secretion, at the Institute of Physiology, University College, London; Professor F. Cook: A study of the neuro-muscular