

reservoirs and dams to impound water for purposes of irrigation. These waters are often strongly alkaline, and affect the concrete of the dams most injuriously. To avoid this evil is one of the important problems now in hand.

One laboratory of the technologic branch is in Washington, and its particular function is to examine the coal purchased for the use of the government, and also to pass upon the quality of the structural materials used in public works. This latter heading covers not only substances like cement, plaster, clay, brick and terra cotta, but also iron and steel, mineral paints, and roofing materials, whether of metal or of asphalt. In short, this laboratory is entirely technologic in character, and its chemists find their time fully occupied with routine affairs.

Although petroleum is studied by the technologic branch with reference to its efficiency as fuel; still other investigations upon it are carried on in a distinct laboratory under Dr. David T. Day. Dr. Day is engaged upon a systematic study of all the petroleum fields of the United States, determining the physical properties of the oils and examining their distillation products. In each oil he determines sulphur, asphaltum, paraffin, water and the unsaturated hydrocarbons, and when this preliminary investigation is finished the work will be further developed with regard to special details. It is proposed also to re-examine the oils from time to time, in order to ascertain whether the wells have undergone any change in character. In this work Dr. Day cooperates with a committee of the International Congress on Petroleum, for the purpose of establishing uniform and trustworthy methods of research. Dr. Day has also, for several years, been studying the filtration of petroleum through clays and shales, in which he finds that a frac-

tation is effected similar to that produced by distillation. This work is being continued, and is yielding interesting results.

F. W. CLARKE

U. S. GEOLOGICAL SURVEY

THE POPULATION OF FRANCE

IN view of the interest in the thirteenth census of the United States for 1910, of which the law governing the enumeration has just been passed, the readers of SCIENCE may be interested in the report of the chief of general statistics of the movement of population in France, during the year 1908, as given in the *Journal Officiel*. This is all the more interesting because of the views entertained in some quarters that France should be numbered among the so-called decadent peoples. The figures for 1908, however, show that the excess of births over deaths, based upon an enumeration of 315,928 marriages, amounts to 46,441. The corresponding figure for the ten years ending with 1907 was 40,550. The following table gives the comparative returns for the decade, with which 1908 is compared:

Years	Marriages	Births	Deaths	Excess of	
				Births	Deaths
1898	287,179	843,933	810,073	23,860	.....
1899	295,752	847,627	816,233	31,394	.....
1900	299,084	827,297	853,285	.....	25,988
1901	303,469	857,274	784,876	72,398	.....
1902	294,786	845,378	761,434	83,944	.....
1903	295,996	826,712	753,606	73,106	.....
1904	298,721	818,229	761,206	57,026	.....
1905	302,623	807,291	770,171	37,120	.....
1906	306,487	806,847	780,196	26,651	.....
1907	314,756	773,645	793,537	.....	19,892
Av. 1898-1907	299,885	825,423	788,461	40,550	4,588
1908	315,928	791,712	745,271	46,441	.....

It is noteworthy that for 1908 the number of deaths was the smallest in eleven years and considerably smaller, of course, than the average for ten preceding years. In births there is a recovery from the minimum of 1907, and marriages are the largest in eleven years, being five per cent. greater than the

average for 1898-1907. These are the facts, whatever the explanation may be.

JOHN FRANKLIN CROWELL

NATIONAL INSPECTION TO PREVENT IMPORTATION OF DESTRUCTIVE INSECTS

DR. L. O. HOWARD, chief of the Bureau of Entomology of the U. S. Department of Agriculture, has returned to Washington from Europe, where he has been engaged during the past month in interviewing paid and volunteer agents of the Department of Agriculture and the state of Massachusetts who are assisting in the importation into the United States of the parasites and other natural enemies of the gipsy moth and brown-tail moth. In the course of this work, according to a bulletin of the U. S. Department of Agriculture, Doctor Howard visited France, Holland, Germany, Russia, Austria, Hungary, Switzerland and England, and the results of the trip are already evidenced by the receipt at the parasite laboratory, Melrose Highlands, Mass., of a greatly increased amount of parasitized material, which is being handled at that point by expert assistants and will subsequently be liberated in woodlands ravaged by the gipsy and brown-tail moths. A great interest is shown in the different European countries in this very large-scale experimental work, and the official entomologists and others are anxious to do everything in their power to help the United States.

The brown-tail moth, it will be remembered, was accidentally introduced into this country upon plants imported from Europe. Many other injurious insects have been brought in in the same way, and the danger still exists in the absence of any national quarantine and inspection law. Such quarantine and inspection laws are in force in nearly all civilized countries of the world, and the United States is almost unique in its indifference to this great danger. The amount of money that has been spent by the different states in New England and by the general government in fighting the gipsy and the brown-tail moths alone would support a national inspection service for many years. Last winter there were

brought into the United States, mainly at the port of New York, thousands of apple and pear seedlings from France which carried the winter nests of the brown-tail moth. These seedlings were distributed all over the country. An effort was made, through the assistance of the custom-house authorities and the railroads, to trace of all these shipments to their destination and to secure inspection and destruction of the injurious insects before the opening of spring. It is probable that these efforts were successful, but the experience emphasizes the necessity for a national law.

Doctor Howard was instructed by Secretary Wilson to visit the leading exporting nurseries in Holland, France and England in order to determine the efficiency of any inspection service that might exist in those countries. He found that the inspection service in Holland is excellent, as conducted by J. Ritsema Bos, of Wageningen, and his assistants. Nursery stock bearing the inspection certificate of these officials can be accepted in this country without any danger.

In France it was found that no governmental inspection service exists and that the certificates which have hitherto accompanied nursery stock from that country can not be relied upon. After consultation with the leading nurserymen and the authorities of the Ministry of Agriculture of France, Doctor Howard was assured by the Director of Agriculture, M. Vassillière, that the French government will immediately establish an official inspection service, under the direction of Dr. Paul Marchal, a thoroughly competent man well known for his work on injurious insects, so that in the future nursery stock coming from France and bearing the inspection certificate of the Ministry of Agriculture can be relied upon.

In England, it was found that no governmental inspection service for home nurseries exists. Officials of the Board of Agriculture assured Doctor Howard that it is the desire of the board to establish such a service, but that the demand must come from the English nurserymen. Members of the Council of the National Association of Nurserymen, of England, were then interviewed, and it seems