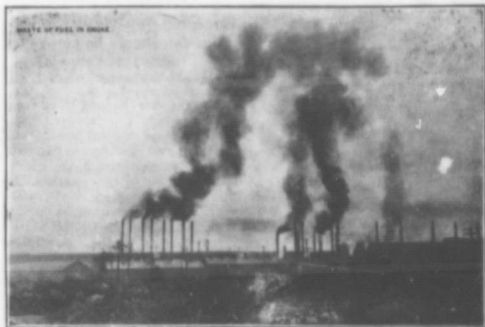


## PHOTOGRAPHS THAT SPEAK FOR THEMSELVES



Showing the waste of fuel in smoke and the nuisance arising from hand-fired boilers. See Article on the Smoke and Fume Nuisance.



An almost total absence of smoke. A 2,700 h.p. boiler plant in operation. This plant is fired by mechanical stokers and the coal used is "stuck" and crushed splint. The photograph illustrates normal conditions.

## The Smoke and Fume Nuisance

### Something About the Causes—The Cottrell Process as a Remedy

During recent years much public attention has been given to nuisances arising from improperly burned fuels, fumes from smelter plants, acid works and pulp mills, dust from cement works and other plants which give off obnoxious and destructive fumes and solids.

#### Smoke Nuisance in Cities

In many cities, anti-smoke laws have been passed for the purpose of abating this nuisance.

Dense black smoke from power and other plants is due to the improper and partial burning of the fuel. The only efficient manner in which this may be overcome is to use boilers adapted to the class of fuel on hand and firing them in such a manner as to obtain almost perfect combustion.

The use of briquettes also tends to lessen the smoke nuisance.

#### Fumes and Dust a Nuisance

The question of dust and fume condensation is a more difficult one to deal with. The effects of allowing fumes to be freely expelled into the air is most destructive. In the case of smelter fumes, the forestry and agricultural interests are generally damaged.

Among the different methods used for collecting the fumes and solids may be mentioned the different filter methods and electrical fume-precipitation.

#### The Cottrell Process Described

The Cottrell process of electrical fume-precipitation is of considerable interest on account of its wide range of application and because of the fact that the net profits result

from these patents are to be used for scientific research. The following is a brief description of the principle involved in this process:—

The precipitation of suspended matter in gases or liquids may be accelerated by either alternating or direct current. The former acts by agglomerating the suspended particles so that, constituting larger bodies, they settle by gravity more rapidly. In other words, the electrically charged small particles take positive and negative signs and these attract each other to form larger bodies which settle more rapidly by reason of their weight. This principle has been used for settling fog by sending powerful Hertzian waves into foggy air and also for separating emulsified water from crude petroleum.

For the voluminous and rapidly moving gases of smelters this agglomerating process is too slow and direct current of high potential is used. If a needle-point, connected to one side of the direct current line, be brought opposite to a plate connected to the other side of the line, the space between, and any insulated body contained in it become highly charged with electricity of the same sign as the needle, whether positive or negative; and such body, if free to move will be attracted to the plate of opposite sign. Suspended particles of fume may thus be precipitated, not slowly by gravity, but instantly, by electricity upon electrodes.

This process has been used successfully for precipitating sulphuric acid vapour from powder works, and lead and silver refineries; solid dust and fumes with sulphuric acid from smelters; and dust from cement plants; and for many other purposes.

The amount of electrical energy used is comparatively insignificant and depends, not on the amount of matter to be precipitated, but on the volume of the gases to be treated.

## Vital Statistics of Canada

### A Question of National Importance—Better System of Compiling Required

The collection of vital statistics and collaboration of the same is a national matter and should in some way be directed or controlled by the Federal Government.

The present method of the registration of births, marriages and deaths is very imperfect and unsatisfactory. Being performed by the various Provincial Governments, the methods are not uniform and are not as complete as they should be.

To serve any useful purpose, vital statistics returns should be made at least weekly, to some central authority in order to permit of the compilation of monthly reports.

The system adopted in most of the provinces of Canada for the registration of births, marriages and deaths and the collaboration of the returns is under an official who holds the position of Chief Health Officer of the Province and Deputy Registrar-General. The reason for this is that the Vital Statistics Branch is the clearing house for the Health Department, and, if an intelligent use is to be made of vital statistics returns, these should be placed under the Health Branch of the Federal Government.

It might further be pointed out that all matter passing through the mails in reference to births, marriages and deaths is carried free, and, hence, a very considerable sum is saved to the Provincial Governments as well as to municipal authorities, and it would appear that, for this consideration, the Federal Government should at least insist upon a uniform system in the method of collection of data by the several provinces and upon the making of regular returns to the Public Health Branch of the

Federal Government service, which branch should be required to collate the same and publish at least monthly bulletins.

It might further be pointed out that the registration of births, marriages and deaths is of national importance and is not confined to any city or province. The registration satisfies a most important legal requirement in the proving of age, paternity, etc., and it should always be considered as the brief life history of each individual in the community. Indeed, in many respects, it is of imperial, and, indeed, international importance.

If a system such as outlined is established it would obviate the necessity for the including of such information in a decennial census.

## What Forestry Means

### Hon. W. R. Ross Defines it Concisely

The true meaning of forestry, as it is intended to apply that science in the Province of British Columbia, was admirably expressed by Hon. W. R. Ross at the recent convention of the Canadian Forestry Association held at Victoria. He said:—"Forestry, as we practice it, means the scientific management of the Government's immense timber business so that the citizen who would otherwise have to pay \$15 in taxes has only to pay \$10; so that in years to come the citizen will have to pay still less; so that, while producing these effects on revenue, the system of forest finance will be so adjusted as to offer the maximum of encouragement to the growth of the lumber industry; and, above all other considerations, so that our forest capital, the source of our forest prosperity, may be preserved intact."