

## Chemistry in the Customs Department.\*

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Denaturation by other means, such as the addition of wood naphtha, is only allowed by special permission in the interests of the development of certain industries and in the case of certain IMPOTABLE preparations. Such denaturants "earmark" the spirit as "specially denatured" and the chemist is responsible for their detection.

#### PROOF SPIRIT.

The way in which alcoholic content is described, *i.e.*, in terms of "proof spirit," has a peculiar origin. If a light is put to alcohol, it will burn, even when it contains fairly large quantities of water. In early days, if a specimen of alcohol was poured over gunpowder and then ignited, the alcohol was said to be "under proof" if the flame ceased burning without igniting the gunpowder and "over proof" if, under these conditions, the gunpowder burst into flame. The weakest solution which just permitted the gunpowder to inflame was called "proof spirit". The strength of this spirit was accurately determined and spirit strengths are still described in terms of this arbitrary standard, *i.e.*, in degrees of proof spirit. A spirituous liquor is said to be 10° "under proof" if, from 100 volumes of that liquid, 90 (*i.e.*, 100-10) volumes of liquid of proof strength could be made. Thirty degrees

present and a modified\* form of the test has been worked out by two chemists at the Bombay Custom House and is in current use

#### WINES, ETC.

Some alcoholic beverages, *e.g.*, beer, porter, cider, are not tested directly, but they have to be identified. Wines not containing more than 42 degrees proof spirit, roughly 21% by vol. of alcohol, and perfumed spirits or scents are assessed by volume or gallonage.

Wines containing small quantities of medicinal substances are called "Medicated Wines". For Tariff purposes, they are assessed at a lower rate of duty than that charged on ordinary beverages containing spirit and they are classed in a separate category although, fundamentally, there is little difference between a medicated and a beverage wine. Wines containing very small quantities of medicinal substances are also sold as "aperatif wines" and claims are sometimes made for their preferential treatment as medicated wines. This is not permissible in Customs although Excise regulations allow them to be sold under a medicated wine licence in chemists' shops. An up-to-date list of medicinal, aperatif and beverage wines is maintained in all Custom Houses.

#### PROHIBITED AND RESTRICTED DRUGS.

Allioids such as morphine, cocaine and other

of goods and the necessity for a specially trained and other subjects have been published in scienti-

products contained impurities dangerous to human life. Salt is sometimes exempted from duty when used for certain manufacturing processes if it is rendered unfit for human consumption by "denaturing" it with naphthalene or "hypo".

Salt imported and issued with the previous sanction of the Governor-General in Council for use in certain manufacturing processes such as glazing stoneware or curing fish is allowed to enter India duty-free.

#### FUMIGATION.

This extensive country is afflicted with many pests which seriously hinder agriculture and Government is very anxious to prevent the introduction of any new varieties. Hence, all imported living plants and certain seeds have to be disinfected at the ports by fumigation with prussic acid vapour before being sent to their consignees.

#### TRAINING OF YOUNG CHEMISTS.

From time to time one or other of our laboratories has been responsible for the training of chemists for special purposes and it is now decided that the laboratories of the Central Board of Revenue shall undertake certain testing work for certain other Government Departments, for example, the examination of oils for Indian Railways to enable them to classify them correctly under the various freight rates.

#### KINDS OF DUTY.

In general, Customs duty can be classified under three heads:—

1. Duty imposed purely for *revenue* purposes. This duty is levied on all goods whatever their

as will be understood from the following examples, the classification of all of which depends on chemical examination; the fibres mainly concerned being cotton, wool, silk and artificial silk and the difficulty of the work is much increased by the introduction of many classes of composite fibres.

Fabrics containing gold or silver thread are assessed at 50 per cent. *ad valorem*, whatever the rest of the material is made of. Fabrics not otherwise specified containing more than 90 per cent. artificial silk are assessable at different rates depending on whether they are or are not of British manufacture.

Woollen fabrics not otherwise specified containing not more than 90 per cent. wool, excluding felt and fabrics made of shoddy and waste wool, made in the United Kingdom are on the preferential list. Their examination involves (a) determination of wool and (b) the decision as to whether the wool is waste or shoddy.

Other items requiring reports from the laboratories are:—

Cotton fabrics not otherwise specified containing more than 90 per cent. cotton; fabrics not otherwise specified containing more than 10 per cent. and not more than 90 per cent. silk; the distinction between pure silk and silk noils and waste silk and many others.

While certain antimalarial alkaloids are imported free of duty, it is difficult to get the same privilege for any substance imported under a trade name for the same benevolent purpose. For instance, Paris Green, a basic arsenite of

the class to which a particular dye or auxiliary belongs, but sometimes to identify the substances as well. They are also required to test insoluble dyes, coal-tar lakes and other coal-tar pigments used for the manufacture of printing ink, etc., and which are assessed under a separate heading.

PLATED ARTICLES.

To encourage the electro-plating industry in India, a preferential duty has been imposed on electroplated articles, but the term "electro-plating" has caused a good deal of trouble.

is a function of the Collector of Customs but presumably he is driven to consider in what manner it is imported; in packets labelled as some sort of foodstuff, or in sacks, presumably for the textile or other industry, possibly to be packeted as a food later on after having paid the lower rate of duty!

Similarly toilet soaps and household soaps are assessed at different rates of duty.

A variety of "toilet preparations" are submitted for test and the high content of liquid