

A BRIEF REVIEW OF THE CRUDE DRUGS ENTERED AT THE PORT OF
NEW YORK DURING THE PAST YEAR.

BY L. J. SCHWARZ.

The Pharmacognosy Laboratory in the New York Station of the Bureau of Chemistry is primarily concerned with the control of import shipments of crude drugs and spices. Since most of these products find their way to our markets through the port of New York, it was thought that a brief review of the findings of that laboratory would prove of interest to this Association.

During the past year we examined approximately 3500 shipments of crude drugs. In spite of the fact that we could not examine all of these importations minutely, we, nevertheless, found it necessary to recommend to the Chief of the New York Station detention action on 210 shipments because they did not comply with the prescribed standards. The shipments thus detained were reexported, destroyed, reconditioned or released on affidavit of the buyer that the goods in question were used only in a specified manner.

The large number of detentions might justify the belief that the crude drugs offered for entry at the Port of New York were of unusually poor grade, but that is not at all the case. In fact, there has been an improvement in the quality of most of our imported crude drugs during the past few years. The one feature that is clearly brought out is the necessity of this control work. It is hoped that during the coming year the Pharmacognosy Laboratory may be able to further increase its activities, not only along the regulatory lines, but also in the field of research, assisting the crude drug interests in solving their problems in connection with drug substitutes, new drugs, and the authenticity of alleged recognized drugs from new sources of supply.

The sub-standard drugs examined during the year were not confined to any one class or to a few items. In reviewing these, therefore, it will be most convenient to group them and to mention only those that were found to be more or less frequently below standard or which for other reasons might prove to be of interest.

ROOT DRUGS.

(ROOTS, RHIZOMES, ROOTS AND RHIZOMES, TUBERS, ETC.)

Some of the Belladonna Root which was recently offered for entry was of very poor grade, consisting largely of stems, stem bases and old hollow roots. One large lot in particular appeared to have been made up of offals, since it contained only an occasional piece of prime, sound root. Another importation proved to be rather interesting in that it consisted predominantly of Poke Root, showing that Poke Root is again being used as an adulterant for Belladonna Root.

As for Ipecac, both the Cartagena and Rio varieties were found to be of good quality for the most part. Only a small quantity fell below the prescribed alkaloidal standard. One lot of spurious root only remotely resembled Cartagena Ipecac. It gave a negative test for alkaloids and as yet has not been identified.

The Jalap imported during the year was not especially high in resin content, particularly the more recent shipments. Of the lots lately analyzed, none were found to exceed 8% of resin, and several contained only 6%, or less.

Most of the Licorice brought in was not as good as it has been. A lack of care in the collecting and curing of this drug is evident from the presence of stems, and poorly dried, mouldy and partially decomposed roots.

There has been a marked improvement in the quality of Sarsaparilla Roots. Much of the Mexican root now finding its way here is so clean that it seems to have been washed. Occasional lots, however, were very dirty, yielding as high as 19.5% of ash.

Other root drugs which were found to be at variance with the prescribed standards were Burdock Root, for which was substituted the woody root of the second year's growth; Couch Grass, which contained an excess of stems and was high in ash; Orris Root, extremely mouldy; Valerian Root for which was substituted a spurious root; and Rhubarb, which was low in aqueous extractive and high in roots having dark central areas.

BARKS.

For the barks, there is little of interest to be said, from a control point of view. With the exception of Cascarilla and Cinchona, most of the widely used official barks are produced in this country.

Samples of Cascarilla Bark examined, however, contained as much as 30% of wood and stems. The Cascarilla Siftings, a by-product in the preparation of the bark, frequently offered for entry, are invariably dirty and may yield anywhere from 15-60% of ash.

All of the Cinchona brought in did not measure up to the U. S. P. requirements. Four lots were detained because the bark in question was spurious. These were identified by the Pharmacognosy Laboratory at Washington as being derived from *China bicolorata*. Of course, some low-test Cinchona was also received.

LEAF DRUGS.

(LEAVES AND FLOWERING TOPS, LEAVES AND LEAFLETS.)

Buchu was adulterated with the leaves of *Barosma ovatum*, *Barosma crenulata* and *Empleurum ensatum*. In addition to this, shipments high in stem content and ash were examined.

Several very recent lots of Belladonna Leaves were adulterated with *Scopola* and *Digitalis* Leaves.

Egyptian Henbane (*Hyoscyamus muticus*) has been brought in for the official Henbane. Several recent importations were found to consist for the most part of rosette leaves which were very low in alkaloids.

The Stramonium leaves analyzed were of poor quality, being usually very dirty and adulterated with *Xanthium strumarium*, *Hyoscyamus niger*, *Plantago major* and large stems. The alkaloidal content usually came within the U. S. P. requirements, although in some cases it fell to 0.18%.

Greek Sage (*Salvia triloba*), which is generally conceded to be decidedly inferior to the official in both taste and odor, was substituted for sage.

Several of the Marjoram shipments recently brought in were grossly adulterated with a variety of *Cistus* leaves, very probably *Cistus albidus*. One lot contained approximately 50% of this adulterant.

Other leaf drugs found to be sub-standard were Senna leaves, particularly the Senna Siftings, which contained excessive quantities of sand, and Thyme which was adulterated with *Thymus Zygii* and *Origanum vulgare*.

FLOWERS AND FLOWER PARTS.

In reviewing the group of drugs which comprises the flowers and flower parts, *Matricaria* stands out as the most conspicuous offender against the Purity Rubric

of the Pharmacopœia. *Matricaria* importations throughout the year were by no means fancy, most of the lots consisting of badly broken flowers. Sub-standard lots were detained because they were adulterated with the flower heads of *Marula cotula* (Dog Fennel), or because they contained excessive quantities of stems or earthy matter.

Several lots of Saffron were also found to be below standard. Here the chief causes of inferiority were the presence of excessive amounts of yellow styles or moisture. One importation contained approximately 20% of moisture.

The very poor grades of Lavender and *Malvae* flowers examined owed their inferiority to high leaf and stem content or to the fact that many of the flowers had already gone to seed.

FRUITS AND FRUIT PARTS.

Several members of this group of drugs were frequently sub-standard. *Cap-sicum* is one of them. Some shipments of this drug contained as much as 60% of wormy and mouldy fruits. Only occasionally was a lot sub-standard because of the presence of an excessive quantity of stems and calyxes.

Cubebs have given a great deal of trouble during the year because they were consistently adulterated. The chief adulterants were the so-called stems and the fruits of *Piper ribesioides*. Occasionally, however, spurious sessile fruits were also found. Some analyses have shown the presence of thecaphores to the extent of 15% and spurious fruits to the extent of 63%. It is felt that an improvement in the quality may be looked for as the producers are more familiar with our requirements.

Several lots of *Colocynth* pulp were detained because of an excessively high seed content. One lot contained 38% of seeds and epicarp.

Of the Umbelliferous fruits, Anise, Coriander, Cumin and Fennel were very frequently sub-standard, particularly Anise, most of the recent importations of which were detained. Of the Levant variety not one sample complied with the requirements of the Pharmacopœia, and only occasionally did the Spanish variety measure up to the standard. Anise was denied clear entry for the most part because of the presence of excessive earthy matter, the ash yield usually being more than 13%. Other factors contributing to the inferiority of this drug were high immature fruit content, and the presence of stems and foreign organic matter in which the fruits of Coriander and the seeds of various grasses generally predominated.

The Coriander brought in, especially that which came from Morocco, was of very poor quality. It consisted for the most part of old crop goods or a mixture of old and new crop fruits. Practically every shipment contained bored fruits, frequently to the extent of 10%. In addition to this, some of the lots held as much as 10% of foreign matter which usually consisted of Fenugreek and cereals. The Coriander crop in Morocco last year was practically a failure, which no doubt accounts for the poor quality of the offerings from that country.

The chief objection to the Cumin seed offered for entry throughout the year was that it contained too much earthy matter. Most of the shipments were detained on these grounds and held until they were properly cleaned. It was a pleasure to note that the most recent arrivals were of excellent quality and clean.

The condition of the Fennel imported resembles that of the Anise. The French variety especially was often found to be high in ash, one sample containing more than 17%. As a rule, this variety also contained an excess of organic foreign matter,

usually stems and very immature fruits. Bitter Fennel (*Foeniculum piperitum*) was substituted for the official Fennel in one shipment.

SEEDS.

Nothing of interest developed in the seed group throughout the entire year. Several lots of Mustard Seed were detained because they contained up to 14% of foreign seeds; Jambul, because of the presence of stones and because of its wormy condition; Dandelion Seed, because of its high chaff content; and Caustis Barley because it contained an excess of earthy matter.

SPORES AND TRICHOMES.

The spores and trichomes which are used as drugs and those examined in the laboratory include Lycopodium, Lupulin and Kamala. The Lycopodium which came in during the early part of the year was excellent, with the exception of one lot which contained 80% of chalk. The more recent shipments, however, were not of U. S. P. caliber, and contained small quantities of rye starch, spore cases, and inorganic matter. One sample yielded more than 8% of acid-insoluble ash.

All of the Kamala recently imported contained an excessively high ash content. Three out of four lots showed an ash content twice as high as that permitted by the standard.

Most of the Lupulin examined had a fine color and odor. Only a few lots were denied entry because of their high sand content.

GUMS, RESINS, AND GUM-RESINS.

Acacia and Tragacanth usually conformed to the U. S. P. standards. Only an occasional lot of Tragacanth was excessively dirty, and the only fault we had to find with the Acacia was the presence in several lots of a gum that produced a very dark-colored solution. While the substituted gum was in all probability the product of an Acacia from the interior of Africa, it was manifestly not the product called for by the U. S. Pharmacopœia.

Unfortunately, the Karaya Gum offered was not always of good quality. The low-grade gum usually had adhering to it wood or bark, samples of which yielded as much as 1.89% of crude fiber.

Siam Benzoin importations received throughout the year were excellent, but the Sumatra variety was frequently sub-standard, some samples yielding as little as 62% of alcohol extractive. The most recent importations of Sumatra Benzoin, however, complied with our present standard in every particular.

Guaiac generally contained liberal quantities of wood and bark, which of course was reflected in the alcohol-insoluble value. One lot contained 56% of alcohol-insoluble matter and only 4.2% of ash. As a rule, this drug did not yield excessive ash.

Myrrh, too, was not infrequently sub-standard, being at variance with the requirements with respect to both alcohol solubility and ash.

With respect to Asafoetida, the importations throughout the entire year were practically nil at the Port of New York. This probably is due to the fact that during the preceding year there was a heavy importation of this drug, much of it coming here on consignment.

This, in brief, reviews the crude drug situation as seen from the Pharmacognosy Laboratory at the New York Station.

But very few shipments of sub-standard drugs are destroyed. Most of them are either reexported or reconditioned in such a manner as to bring them up to standard. During the coming year the Pharmacognosy Laboratory will endeavor to do all it can to assist importers in working out economical methods for reconditioning such sub-standard importations as may be received from time to time. This will not be done to encourage buying low-grade drugs abroad, but mainly to mitigate a financial loss which might accrue to the importer, and also to make available for this market drugs which otherwise would be lost to it.

In conclusion, it is a pleasure to state that practically all of the drug importers in the city of New York have voiced a willingness to cooperate with us in the conduct of this drug control work. With their hearty support, much can be accomplished. It is, therefore, with confidence that we can look forward to the work of the coming year, and feel reasonably sure that the consumer will have available to him standard crude drugs of uniformly good quality.

THE NECESSITY OF A COMPARATIVE PHARMACOPŒIA.*

BY OTTO RAUBENHEIMER.

Uniformity in medicines, as to strength and physical properties, has been the desideratum from time immemorial. This is how formulas were originated in local communities, in districts, in states, and later in entire countries. The desire for uniformity gave birth to our National Formulary in 1888, an everlasting credit to the A. Ph. A.

From the collection of formulas by the old medical writers, formularies, dispensatories and pharmacopœias originated. From such a collection (*Formulæ Selectorium Pharmacorum*) by Valerius Cordus the city of Nuremburg in 1546 published that celebrated *Dispensatorium*, the first legal pharmacopœia of its kind. With the principal object of creating uniformity the pharmacopœias of cities extended over states, countries and nations. This desire for uniformity gave birth to our U. S. P. in 1820, to the British Pharmacopœia in 1864 (from the London, Edinburgh and Dublin Pharmacopœias), and to the German Pharmacopœia in 1872, and to all national pharmacopœias.

As is to be expected, a number of drugs, and especially preparations, vary in strength and composition in the different pharmacopœias from all parts of the world. Examples of this sort are the following:

The *Pharmacopœa Universalis* of 1828 is a compilation of 34 pharmacopœias, of which 28 contain formulas for Tincture of Cantharides, which not only differ as to *modus operandi*, namely, maceration or digestion, or the time, from 2 to 14 days, or the alcoholic strength, from 50% to 90%, but what is most important of all, as to strength of the finished tincture, which varies from 1:6 to 1:96. This means that the ratio in the different tinctures of cantharides is 1 to 16.

As a teacher the writer holds up the following variations in strength, before the Brussels Protocol, September 1902, as vivid examples to his students:

Pulv. Doverii—8.8% Sp., 14.3% Aust. and It., 16% Belg., 10% others.
 Tinct. Strophant.—2.5% Brit., 5% U. S., 20% Fr. and Mex., 10% others.
 Tinct. Aconit.—5% Brit., 20% Fr. and Hung., 35% U. S., 10% others.

* Scientific Section, A. Ph. A., Cleveland meeting, 1922.