

WEST INDIES.

REPORT

ON

EXCISE RESTRICTIONS

IN FORCE IN THE

WEST INDIES AND BRITISH GUIANA.

In relation to a proposal to sanction the payment of such an allowance on Export of rum as shall compensate the Distillers in those Colonies for additional outlay caused by Excise Restrictions.

By MA. J. STEELE, C.B.

Presented to both Houses of Parliament by Command of His Majesty.

July, 1903.



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BY MR. J. STEELE, C.B.

MR. J. STEELE to MR. CHAMBERLAIN.

(Received October 22, 1902.)

SIR,

October 21, 1902.

In compliance with your instructions I visited the West Indies and British Guiana:

- (a) To conduct an examination into the Excise Regulations under which the manufacture of Rum is carried on in these British Colonies.
- (b) Keeping in view the allowance granted on spirits exported from this country, as an equivalent for the additional cost to distillers, of Excise restrictions imposed in the interests of the revenue, and the surtax on the ordinary customs duty, calculated in the same manner as the export allowance levied on spirits imported into the United Kingdom, to study the restrictions in force in each colony, to consider whether any of these are unnecessary, or, if in the interests of the revenue, they should be made more stringent, and to report which of these may properly be taken into account in fixing an allowance on export, and at what amount that allowance should be fixed.
- (c) To advise the Government of each colony generally on the subject of its Excise system, with a view of remedying defects and establishing a nearer approach to uniformity, so far as is consistent with the differences of local conditions.

To carry out these instructions I left this country for the West Indies on the 1st of March last, and returned home on the 3rd September, after visiting—

Jamaica,
British Guiana,
Trinidad,
Grenada,
St. Vincent,
Barbados,
St. Lucia,
Dominica,
Montserrat,
Antigua, and
St. Kitts.

The Islands of Tobago and Nevis were omitted. The former because it is under the same Excise system as Trinidad. The latter as it stands in a similar relation to St. Kitts. The Virgin Islands I did not visit. The Rum industry there is comparatively small. Rum is not exported, and in the absence of steam communication with this group they are difficult to reach, involve delays and much waste of time.

The Commissioner for the group has been asked to furnish certain particulars of the industry, which will enable me to deal with the object of my mission as it affects these islands.

In placing my findings and views on record I purpose taking each Colony in the order of my visit, and it may be convenient to treat the subject under the following heads :—

- (a) Distillery plant. System of manufacture and account. Excise regulations affecting distilleries and other sources of Excise revenue.
- (b) Excise restrictions, estimated value of in each Colony.
- (c) Certain general considerations and recommendations applicable as a rule to more than one Colony.

JAMAICA.

There are at present 108 rum distilleries in this Colony. The report of the Royal Commission of 1897 gives the number at that time as 150.

Forty-two have therefore ceased to exist in the short interval of five years.

DISTILLERY PLANT.

The still in use in the Colony is that known in this country as the common-pot still. Steam is sometimes used as the heating agent, but as a rule the still is heated by the use of fire underneath. The capacity is comparatively small, and ranges from a minimum of 300 gallons to a maximum of something over 1,000.

Each still is connected with a cylindrical copper retort, about five feet in height and from three to four feet in diameter. In some cases two retorts are in use, one for "low-wines" and one for "high-wines,"—"high-wines" being a term applied in this Colony to impure spirits of a higher strength than low-wines, recognised in this country under the designation of "feints." The arm through which the spirit vapour is conveyed from the still enters the retort near the top, passes down inside through a vacant chamber to a point near the bottom. When the retort is partially filled with low-wines the spirit vapour from the still is discharged so near the bottom of the vessel that it must ascend through the cold liquor and be condensed until the temperature reaches the point of vaporisation, when the resulting spirituous vapor either passes into the next retort, where it is similarly treated, or enters the worm, is condensed therein and delivered as spirits from the worm end in the "can pit." The term "can pit" derives its significance from the use of a can for removing the spirits from the worm end, which is commonly located in a pit, a few feet below the level of the ground, and approached by steps.

The retort, which usually stands on a level with the part of the still above the brickwork, may be regarded as a less costly substitute for a low-wines still, such as is invariably in use in this country for the distillation of low-wines and feints.

The fermenting vessels used call for no remark. There is no wash charger or other vessel intermediate between the fermenting vessel and the still. Only in a few cases is a spirit receiver provided. The low-wines' and the high-wines' receivers are commonly inexpensive vessels, frequently consisting of wooden casks tilted on end.

The spirit store is as a rule provided with rats for holding spirits. In a few cases the spirits are filled direct from the can pit into the carrying casks, standing in the store.

The plant, with few exceptions, is not expensive. It is somewhat primitive if not worn-out looking. Pumps either fixed or movable are rarely seen.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The vorts set up for fermentation consist of a mixture of molasses, skimmings (impurities skimmed off boiling canejuice in clarifying it), dunder (another name for "spent wash"—the name given to it in this country), and water sufficient to reduce the mixture to the required density or gravity. The mixture is made in a tank or vessel and conveyed into the fermenting vessel—occasionally the materials are manipulated in the fermenting vessel itself. Fermentation, which is spontaneous, usually occupies from ten to twelve days. No yeast or other ferment is employed.

Wash is delivered direct into the still, and whenever a fermenting vessel is empty it may be refilled without delay. The spirit distilled runs from the worm end into an open movable wooden tub, or sometimes into an open copper vessel placed below the worm end in the can pit. The wooden can in use for carrying the spirit from the can pit into the spirit store is a stamped imperial measure of two sizes, one holding four, and the other five gallons. It resembles the half of a cask with two heads, in the narrower end of which is a triangular opening through which the spirit falls into the vessel whenever it is placed under the worm end.

The attendant, or labourer, employed at the can pits when one can is full replaces it with an empty can, carries the full can on his head and empties it, (*a*) into a receptacle which is in close communication with vats inside spirit store; (*b*) into the vat itself inside the store; or (*c*) direct into the carrying casks lying in store. A wooden tally board is provided near the can pit, and the can bearer is expected to shift a wooden peg forward one hole each time he passes on his way to the store with a full can. Each hole so passed represents four or five gallons, as the case may be, and from the tally board, the revenue account is taken for entry of the quantity from still in the still-house book.

When the removal of rum is completed a similar course is adopted in respect of high-wines and low-wines. In the absence of a pump the full cans are carried upstairs on the attendant's head and emptied into the proper receiver, which is usually connected with the retort by a close metal pipe through which the impure spirit may be run into it at pleasure.

In the spirit store the distiller is left with full liberty to colour his spirit, to ascertain the capacity of each cask to be filled, to fill them, to remove them under his own certificate (official form) to a public warehouse, or for exportation. On special permission, obtained previously, he may remove spirits for ship's stores, or for the purpose of filling up vacancies in casks that may have been standing for some time at ports or places for exportation where there is no public warehouse. He may also deliver spirits for home consumption on previous payment of the duty and obtaining a permit from the collecting officer to cover removal.

EXCISE REGULATIONS AFFECTING DISTILLERIES AND OTHER SOURCES OF EXCISE REVENUE.

The inspecting officer is enjoined by his instruction to visit distilleries frequently and in no case less frequently than twice a month. He is to see—

First.—That the still in use is not of a smaller capacity than 300 gallons.

Second.—That a licence is taken out for each still.

Third.—That high-wines are kept in a suitable vessel secured to the satisfaction of the collector.

Fourth.—That when the retort contains high-wines the discharge cock is secured with a proper fastening and locked.

fifth.—That the can pit is secured in such a manner as to prevent the removal of spirits in small quantities, every aperture or peculiarity of construction, which may afford opportunity for theft or concealment is to be noted and pointed out to the manager.

Sixth.—That vessels used for removing rum (from can pit) contain an even number of gallons, and that an imperial gallon measure is kept for testing the capacity of these vessels.

Seventh.—That rum is not stored in the fermenting house, boiling or curing houses, &c.

Eighth.—That all places used for storing rum are secure, duly registered, and used for no other purpose.

Ninth.—That still-house books are kept written up, the stock of rum duly ascertained and entered at the expiration of every week.

Tenth.—That the person in charge of the estate certifies weekly in the still-house book that the distiller has made the necessary entries.

Eleventh.—That the certificates for removal of rum have been properly filled in.

Twelfth.—That the counterparts of certificates issued, and the duty-paid permits agree with the entries in still-house book of rum delivered for removal.

Thirteenth.—That the abstract of the rum law is kept fixed in a conspicuous place in the distillery.

These instructions are, so far as they extend, satisfactory in the main. Unfortunately they cover the least important feature of a reasonably satisfactory revenue check on the distiller's operations.

The distiller enjoys unrestricted freedom in the preparation and fermentation of his worts. He is not required to show, for revenue purposes, either the original gravity of the wort set up or the gravity after attenuation. The fermenting vessels have not been gauged for taking any revenue account. The distiller is not required to account for the quantity set up. He may mix wort or wash with other wort or wash in fermenting vessels, or remove the wash at pleasure into the still, and immediately refill the empty vessel. No previous written notice of any description is required.

The still is not required to be locked and the first evidence of excise interference is met with at the retorts already described, the discharge cock of the high-wines' retort must be provided with a locked fastening to prevent abstraction of spirits in the distiller's absence. The next evidence of excise interference is at the high-wines' receiver, the discharge cock of which must be provided with a locked fastening unless it stands in a locked cage or place. The can pit is to be enclosed so as to bar the free access to the spirit, of labourers, who consist mostly of coloured people, said to have a great weakness for pilfering amounting almost to a mania.

The can pit is sometimes surrounded with wooden lattice work or wire netting. Occasionally it is inside the spirit store, which is locked. At some places it is so placed that by closing certain doors that open into it from the fermenting room, and other parts of the premises, including the sugar factory, it may be isolated. But in certain other cases it is difficult either to enclose or isolate. In a majority of instances the security of the can pit can with difficulty be looked on as satisfactory.

The spirit store is to be a secure and locked place. The distiller is required to take the stock in store every Saturday and to enter the account in the still-house book, and the manager is to certify in the book that this duty has been attended to. The owner or responsible manager is required to make quarterly returns to the Receiver-General, on oath before a Justice as to their accuracy, showing the balance from last account, the quantity of rum made since, and the quantities delivered from store, showing in each case the destination. These returns are checked by the inspecting officer on his next visit after the end of the quarter.

The inspecting officers are enjoined to visit the distilleries at least twice a month, to take stock occasionally, full or partial. To allow reasonable waste and to report in any case in which such waste is excessive and cannot be explained. There does not appear to be any limit to the inspecting officer's discretion in such cases. This is, I think, a weakness in the system.

The amount of rum drawn from still is kept in liquid gallons. The stock is balanced on a similar basis, not on proof gallons as in this country. Notwithstanding that the inspecting officer is enjoined to test by the use of "beads," or "bubbles," as they are sometimes termed, the strength of a fair proportion of the spirits in

casks or vats embraced in the stock to see that they contain spirits, the system is a source of weakness and ineffectiveness. Gallons at proof are not entered in the books at a public warehouse, unless the spirit is for home consumption duty paid. The account of spirits imported is kept in liquid gallons. In case of statistics, when gallons at proof are required, the strength is arrived at by a process something akin to guess-work.

Jamaica rum is, I am aware, sold in England by the bulk gallon, but the English Customs deal with it at proof.

The adoption of proof instead of liquid gallons would lead to more reliable stock-taking. Warehouse accounts would be placed on a more intelligent basis. There would be a little more work in setting out the additional figures.

Looking at the existing spirit ordinance it is probable that the best has been made of the situation in the matter of excise regulations. The hold the revenue has on the distiller's operations is so shadowy and imperfect that it seems hopeless to look for a remedy in a closer inspection. The operative distiller is custodian of the joint interests, those of his employer, and of the revenue. There is absolutely no check on the quantity of spirits delivered at the worm end. The quantity of molasses used is unknown to the revenue. Nothing is known of the quantity of wort set up. The gravity before fermentation has set in, and the gravity when it is completed are known to the distiller, unknown to the revenue. The existing system is one of confidence in the owners and their servants. If it were possible to suppose that the owners, responsible overseers, or managers, could be present always to keep an eye on the can put and the spirit stove, the risk might be accepted. As it is it is impossible to expect such undivided attention. Many owners are in England. The manager's duties take him out and about. The operative distiller cannot be everywhere or attend night and day, in case of night and day distillation, even if he could always be implicitly trusted.

The existing excise regulations are said to be based on the view that the owner and the revenue have common interests, and that they are practically partners in the concern. Unfortunately the revenue stake is at present nearly four times that of the owner. For an interesting paper on this subject by the Supervisor, see Appendix A.

I have shown that the revenue is without check on the produce at the can pit. Taking the spirit stove, is there any reasonable guarantee that the weekly stocks taken are not adjusted stocks, which do not fairly represent the transactions of the week? The actual waste allowed in store is somewhat perplexing. In tropical Jamaica, where temperature by day in the shade is seldom under 80° F., the wastage is returned as ranging from a minimum of less than half per cent. to a maximum of 4.3. In one case it is only .0015 per cent., but as this case stands alone I am unwilling to draw any conclusion from its occurrence. In this temperate climate of England the average loss is 1 per cent.

But is there any tangible evidence of illicit leakage to show that the existing arrangement is causing loss both to the owner and the revenue?

(a) Cases occur now and then in which the operative distiller is found appropriating spirits. In one case, with which I was made acquainted, the distiller had manipulated the still-house book to cover abstraction. He was fined and dismissed. This case had been discovered at the first distillery I visited, and only a short time before, singularly enough a similar discovery was made at the distillery last visited. The case had not been heard when I left Jamaica. These do not stand alone, so that even the operative distiller, who is, it was said, most trustworthy, is found not to be proof in face of temptation.

(b) The Inspector-General of Police for Jamaica was asked to furnish a return for two years ended 31st March, 1902, of police cases of illegal possession of rum (see Appendix B). His report shows 93 cases, comprehending the parishes of St. Thomas, Trelawny, St. James, Hanover, Westmoreland, Clarendon and St. Catherine. Of the 105 distilleries in the Colony the parishes named embrace about 100. In Trelawny, for example, there are 20 distilleries and 13 cases. In Westmoreland 23 distilleries and 37 cases. In Clarendon 17 distilleries and 25 cases, &c.

(c) In certain country districts it is said that spirit retailers have ceased to keep rum in their stocks, alleging that rum consumed locally comes through some other channel.

(d) There is a declining rum revenue in face of an increasing population. Trade, other than the sugar industry, stationary but not declining.

The following figures may be given to show the case as it stands :—

—		Imports.	Exports.	Railway Returns.			Savings Bank.
		£	£	£	Tonn.	Passenger.	£
1896-7	...	1,834,612	1,470,941	1,284,378	69,013	356,949	423,164
1897-8	...	1,674,280	1,431,868	1,369,751	96,319	402,095	400,184
1898-9	...	1,814,793	1,602,542	1,532,377	99,340	425,215	416,380
1899-00	...	1,806,865	1,868,680	1,797,987	83,942	381,408	416,717
1900-01	...	1,722,069	1,797,077	1,738,523	96,088	391,178	396,546

—		Sugar made.	Rum made, gallons (liquid).	Population.	Consumed.
		Cwt.			Per head.
1896-7	...	436,940	1,894,310	706,394	62
1897-8	...	400,200	1,678,710	718,367	52
1898-9	...	428,440	1,705,330	730,725	49
1899-00	...	440,200	1,734,280	743,104	49
1900-01	...	317,020	1,541,130	753,730	43

This result may be due to other causes such as reduced wages, the success of temperance and other thrift agencies. Wages are lower although higher rates still prevail than in some of the other Colonies.

(e) It is somewhat difficult to account for the falling off in the revenue from rum during the sugar crop season, when rum is being distilled, as compared with the period when distillation is not carried on. The following figures will illustrate the case. The three years '92-3, '97-8, '01-02, do not support the statement :—

Year.	Rum, Duty paid.		*Imported Spirits, Duty paid.	
	December to May (Distilling season).	June to November (No distillation).	December to May.	June to November.
	Proof Gall.	Proof Gall.	Proof Gall.	Proof Gall.
1892-93	...	...	...	...
1893-94	...	...	...	...
1894-95	...	...	...	...
1895-96	...	...	...	...
1896-97	...	...	...	...
1897-98	...	...	...	...
1898-99	...	...	...	...
1899-1900	...	...	...	...
1900-1901	...	...	...	...
1901-1902	...	...	...	...

* Note.—“ Our accounts are in bulk gallons, these figures have been arrived at, in reducing them to proof gallons, by taking the strength to be 140 under proof.”

As regards imported spirits it will be observed that the consumption is greater during the rum distilling season. The imported spirit is mostly consumed by the white inhabitants, while rum is, as a general rule, the beverage of the coloured people. I am not in a position to draw the inference that the diminished revenue from rum is a result of the consumption of spirits on which duty had not been paid. The figures are remarkable, and I am unable to explain them away.

It is at least difficult, having regard to circumstances, to resist coming to the conclusion that there is at these distilleries a not inconsiderable leakage of rum.

Certain owners and managers met with affirm that illicit leakage is at present a negligible quantity. They further put emphasis on the point that, meantime, the owners are not financially in a position to incur further outlay. On the other hand I had important testimony from owners, attorneys, and managers, to the effect that the leakage of rum is a serious item which they desire to see put an end to, provided this can be done without serious cost to the estates. I am not in a position to take either side. All I can say is if there be no abstraction the absence of it cannot be accounted for on the ground of want of opportunity.

Looking at the question exclusively from a revenue point of view, no arrangement can be considered satisfactory which allows the distiller unrestricted access to the spirit on its way from the still to the spirit store. He must be put in a position to know when rum, low-wines, or high-wines, is running from the worm, so that he can direct them into their respective receivers. If need be he should be able to sample for quality, &c. These requirements satisfied, the spirit should pass through properly secured pipes and vessels, and be run into a secure and locked spirit receiver. Access to the spirit in the receiver to be obtained only in presence of the Inspecting Officer.

The most serious defect of the existing system lies in the fact that no independent account is taken as a check on the quantity obtained from the worm end, before the spirit passes into the distillers' hands, to be dealt with in the spirit store. If means existed for taking such an account the officers would then be in a position to effectively check the subsequent accounting in store. This account taken and a charge raised against the distiller, he might be left to deal with the spirit in the store as he does with it now. The stock could not be adjusted with spirits taken from the worm end and not entered. He would have to account for all spirits delivered from the spirit store, or pay duty on any deficiency exceeding a reasonable allowance for natural waste.

Any proposal to change from the present to a more stringent system, beneficial alike to the owner and the revenue, would have to encounter not a few difficulties. Some of them of a substantial character.

The first difficulty that presents itself in this Colony is the position of the worm end, which, in the majority of cases, is, as stated already, a few feet under the ground level. This would either entail considerable excavation to make room for the requisite receivers, or necessitate the elevation of the stills, retorts, worm tub, &c., so as to permit the erection of the receiving vessels above the ground level. The latter alternative is impracticable inasmuch as the plant is, as a rule, old and patched up, and not capable of being disturbed without risk of injury that would probably necessitate renewal, and otherwise the cost would be a serious item. Excavation is practicable but somewhat troublesome, as it implies pumping arrangements for the removal of rum from the receiver into the store, and of impure spirit from the low-wines' and high-wines' receivers into the retorts.

Assuming it to be considered desirable to re-cast the present excise system, I submit the following figures as a rough estimate of cost required to meet the conversion :—

There are 60 distilleries in Jamaica distilling weekly above 80 but less than 1,000 gallons, 38 producing at and over 1,000, but under 1,500, 10 at and above 1,500, but all less than 2,000, excepting one of 2,550. I have made enquiry into the cost of erecting vessels such as would be required. The cost of one spirit receiver for each of the distilleries (numbering 108) in the island, holding about a week's produce, would not exceed, say, £1,500. The existing low-wines' and high-wines' receivers could be removed into the new positions.

I estimate that the cost of making excavations, providing rum receivers, spirit safes, pumps, pipes, and workmanship, would be under £5,000.

The inspecting officer could attend at important distilleries more frequently than once a week, in such cases vessels of smaller dimensions could be provided at less cost so as to reduce somewhat this estimate.

An estimate of the probable increase in cost for staff, furnished by the Supervisor, will be found in Appendix C.

(c) This estimate provides for two visits to each distillery per week by the inspecting officer, for taking account and discharging the rum from the receiver. But with a view to economy of the officer's time it would be expedient in all cases that do not exceed a produce of 1,000 gallons, to require a vessel to hold at least a week's produce. At least 60 distilleries of the 108 would require only a weekly visit for the purpose named, and it is probable that not a few of the better distillers, included in the group producing less than 1,500 gallons, would prefer to erect vessels for a week's supply. In view of these considerations, the fact of continual decrease in number, and seeing the estimate for travelling, calculated on the basis of 8d. to the mile, is somewhat high, I think the annual cost should not exceed £3,300, including Superannuation.

The Supervisor I found to be an intelligent, industrious, capable, and conscientious official. But it seems to me impossible to find any one official fit for the duty of effectively supervising the inspection of 108 distilleries by his subordinates. Besides, he has to perform much indoor work and to supervise a multiplicity of other work done by collectors and assistant collectors, his subordinates, scattered over an island of an area of 4,200 square miles, with a population of upwards of three quarters of a million, a defective train service, and long driving distances. The task is as impossible as it is to expect effective inspection from an officer, with 15 to 20 distilleries under his charge, even if he were not saddled with the performance of other duties as well. In case of the adoption of a new system it would, in my opinion, be absolutely necessary to relieve the Supervisor. Indeed, as things are now, supervision of these distilleries is more a name than it is a reality.

I am not quite satisfied that the previous training of the present class of inspecting officers is such as to fit them for the efficient inspection of distilleries. Their training is principally clerical. They have opportunities for warehouse training within their reach, but they get no distillery training that I can see. The consequence is that I found cases of locked fastenings on retorts from which spirits could be abstracted without interfering either with the fastening or lock, not to speak of certain instances in which the spirit, on its way into the retort, could be intercepted and drawn off through cocks, &c., not secured at all. These defects could not have escaped the eye of an officer trained in distillery work, and in the event of relief to the Supervisor being considered necessary, that relief should take shape in securing a distillery officer of experience, and, if possible, chemical experience, capable of training the inspecting officers, present and prospective.

This brings me to the point at which I can refer to a suggestion made by the Government Analyst (Mr. Cousins) at Kingston, Jamaica, to employ a capable man possessed both of scientific experience and distillery knowledge, who could deal with the problem of attempting to improve the quality of rum produced in the Colony, by a study of the fermentation carried on at the distilleries, as well as of the present methods employed by the distillers generally in the manufacture of rum.

The suggestion is a well meaning one although I experience some difficulty in seeing how it can, in the circumstances, be made effective. A man of some standing possessed of the double qualification, i.e., an able scientist with a practical training in distillery work is not easy to find, and it would be useless to appoint a man tyro to experiment with so difficult a subject as yeast. But assuming such a man to be discovered there is this difficulty to face. No yeast is used in Jamaica which is not produced spontaneously in the wort which is fermented. Assuming the discovery of the most favourable yeast as made, how is the spontaneous* production of yeast in the wort to be mastered so as not to neutralize the action of the cultivated yeast? The addition of the select or cultivated yeast will not, that I can see, interfere with the usual decomposition or fermentation that now takes place, and will take place in the future, and if it be necessary to eliminate from the wort something, say skimmings, the

* NOTE.—In using the term "spontaneous" in this connection it is intended only to convey the vicious fermentation in wort does not, as in this country, require the addition of yeast or other ferment.

quantity of rum obtained may be increased, which is doubtful, but probably at the expense of its quality. In short it might and probably would, no longer be Jamaica rum. There can be no doubt that the operative distillers in Jamaica are, as a class, wholly devoid of knowledge bordering on scientific brewing. There is so much to be done in this way that I fear there is more hope for the rising generation who will have, in course of nature, to take their places, and this points to a technical and an experimental training which can only be secured in a chemical Laboratory. In any case the actual source of rum flavour should be investigated first. Such a discovery would probably direct the way to other lines of inquiry.

There is the further question of the manufacture of German rum, which is produced fitfully at present, and not in such a way as to be obtained consecutively and as a matter of course. Looking at the present methods of manufacture it is absolutely impossible that it could be otherwise. This kind of rum brings from 6s. to 7s. 6d. a gallon, and it is surprising that the makers of it—all of them not certainly poor men (one with about a dozen estates)—have not had the matter investigated for themselves, and I frankly confess that I cannot see that it is fair to the general community to assist such cases at the public expense. This rum is practically all sent to Europe, some to France, but mostly to Germany. It is a very oily spirit, unfit for drinking by itself, and supposed to be used in Germany in making factitious, or imitation, rum out of potato spirit. Indeed, it is referred to in the West Indies as being used in France as a basis for imitation wines. This use I scarcely credit. It is understood that the demand for the article abroad is somewhat limited, and that any great increase in the output might, probably would, create a glut which might lead to reduced prices. If it be used in the manufacture of factitious rum, in other words, for flavouring spirit of some description to make it resemble rum, very little of the imitation spirit enters into competition with genuine rum in this country, only 26,000 gallons were imported last year, while the annual consumption of rum exceeds 4,000,000 gallons.

It is only fair to say that the officers I met were intelligent men, who appeared to be capable officials. Like the Supervisor, however, they appear to have to perform a multiplicity of duties—office and other—making it difficult to think that they do not regard distillery inspection as a secondary matter. For effective survey they should be freed from other work during the rum distilling period, and allowed to move freely about for that purpose, although it must be confessed that there is little to hope for from existing distillery conditions and revenue requirements if the visits were to be multiplied indefinitely.

I may be asked should the more stringent excise system outlined be adopted.

In the case of new distilleries in course of erection or to be erected I am of opinion that power should be in the hands of the Colony Government to deal with each case, so as to secure the provision of proper receivers, pipes, connections and vessels satisfactorily secured, and the levels so arranged that the spirit shall run into the store by gravitation.

As to the existing distilleries the adoption of the locked still system is practicable, not to say desirable, provided it can be carried into effect without imposing much burden on the estates. The number of distilleries is being reduced somewhat rapidly, and probably this feature has not yet quite run its course.

I find that in St. Vincent the Government, in providing something like a similar system, paid for the cost of adapting the apparatus, &c., to the new arrangement. The arrangement in St. Vincent, with its costly intermediate receivers, or measures, and attachments, including receivers made of concrete, was needlessly expensive, not to say clumsy, still, I cannot see that it should necessitate as is said in the blue book, an expenditure of £300 for each work.* (See page 49.)

If I am correctly informed the Government of Jamaica was willing, some time since, to pay the whole expense of the adjustment if the distillers had agreed to the locked system. At that time they were unwilling. From what I learned in Jamaica I think I am safe in saying that the distillers do not object now so strongly as they did then, and that they would be willing to adopt the new system provided the alterations could be carried out, outside of the crop season, without burdening the estate with much additional outlay.

* NOTE.—The Administrator has since reported that the cost was a little more than £300.

I should point out that the new arrangement would save the owner at least the wages of the can pit man, say, 12s. a week, or for the crop season £15. In view of this saving and the benefit to be derived from the locked system, he might be called on to contribute something to the work of reform, such as at least the excavation of the ground for vessels, &c.

TOBACCO REVENUE.

The annual revenue of £1,740 from this source is disappointing. Tobacco has been grown in Jamaica for more than 20 years, and this year's agricultural returns show that very nearly 500 acres are under tobacco.

The lbs. weight of tobacco exported, chiefly cigars, which was only 19,848 lbs. in 1891-92 was 163,479 in 1900-01. In the same period the value of tobacco imported from the United States of America was reduced from £15,935 to £2,290. The consumption of cigars in Jamaica must be considerable, and yet the figures quoted show the highest revenue obtained from this industry.

An ordinance was passed this year, and is now in operation which, it is calculated, will reduce evasion of the duty. It aims at securing a correct book entry of all cigars made, whether for export or for home consumption, so as to check what goes into consumption in Jamaica, on which alone duty is paid. I am not fully satisfied that the new ordinance will cure evasion of duty. The book requirements are somewhat complicated, not to say refined, and I failed to discover an efficient government machinery behind them. This is too much the case in the West Indies—the machinery is set agoing and is then practically left to itself so great apparently is faith in fallible human nature. Duty is restricted to cigars, allowing roll tobacco, made from leaf grown privately, prepared and exhibited for sale regularly in the market places, to escape duty. The coloured population would, it is said, resent any attempt to impose a duty. Tobacco is a luxury as much as rum is, and it is a fit subject for taxation. I cannot think that a small tax would meet with any serious opposition, or that it should be difficult to collect. As the tobacco plant requires some time to grow to maturity in the field, besides that it takes time to cure, including drying and fermentation, these stages should afford ample opportunity for estimating the crop, and then for reviewing that estimate in drying leaf. The annual revenue from tobacco should, I think, not be less than £4,000, whatever more.

Jamaica cigars being in fair demand abroad, it deserves consideration, whether they should not be charged a small export duty notwithstanding that no return is made of the customs duty on the leaf imported to serve as covering for the cigars.

Under the new ordinance a manufacturers' licence is required for which, singularly enough, no money is charged or paid.

In this country the manufacturer pays a licence proportioned to the quantity of leaf manufactured.

SPIRIT RETAILERS' LICENCES.

(a.) These licences appear too low in amount.

(b.) The system appears faulty, inasmuch as the rate of £25 for Kingston is irrespective of the value of the premises or of the business done. It matters not how large or how small the business is in Kingston there is only one rate of licence. This is equally the case in Port of Spain, but the rate of licence there is much higher. Compare rate of licence in Port of Spain, Trinidad, with that in Kingston, Jamaica.

	—		Population.	Amount of Licence.	
				£	
Kingston ...	...	...	48,000	25	
Port of Spain ...	...	...	42,000	200	

The country districts are equally out of proportion.

	—	Population.	Amount of Licence.	
			Certain out Towns.	Country
Jamaica	...	Over 750,000	£ 20	£ 10
Trinidad	...	275,000	—	30
" San Fernando	...	—	100	—
" Other towns	...	—	50	—

I have been struck by these disparities, and find it difficult not to say, that if £25 is adequate for Kingston £200 is too much for Port of Spain.

But is there no alternative to a charge of £25 or £200 for a licence to retail spirits irrespective of the extent of the business done? I admit that a licence conditioned to the assessed value of the premises is not an ideal of perfection, but it seems preferable to a system by which the meanest little public house is treated as on a level with the big Leviathan.

I observe an annual hotel licence in Trinidad costs £50. In Jamaica a similar licence in Kingston is charged £10 and elsewhere £5. Considering the absolute dearth of hotel accommodation in the West Indies I take the view that no charge should be made for a licence in the case of a *boad pds* hotel, as an encouragement to providing better accommodation for travellers. I may observe that the Governor of Grenada has authority under the Ordinance to grant hotel licences free of licence duty in the Colony of Grenada. To my knowledge there are at least two such hotels in that Island.

EXPORT ALLOWANCE.

Excise Restrictions. Estimated value, and other considerations germane to this subject.

The allowance granted on the export of spirits, and the surtax on Customs duty in respect of imported spirits, are intended to compensate the distillers in this country for the outlay caused to them by Excise restrictions which are considered essential to the safety of the revenue derived from British spirits.

Dealing with this Colony there is absolutely no Excise restriction of any kind in connection with the preparation of wort, and no interference during the progress of fermentation, or with removal of wash into the still, no interval is required to occur between the brewing and distilling operations. The still is not locked. No yeast has to be purchased or used, as fermentation is spontaneous. There is no prohibition to the mixing of fermenting wort by removal of any part of such wort from one vessel into another containing wort or wash.

The first Excise interference is met with at the high-wines' retort, the discharge cock of which must be provided with a locked fastening. The next is at the high-wines' receiver, the discharge cock of which is to be similarly secured unless the receiver stands in a locked cage, or other secure place. The can pit is required to be secured. The spirit store must be a secure place and locked. All keys remain with the owner's responsible servants.

Thus far the distiller has been put to some expense for fastenings and locks, and in securing the can pit and spirit store, but substantial Excise restrictions are more conspicuous by their absence than by their presence. As a side light on the claim to be considered for allowance and surtax on the ground of Excise restrictions, it may be pointed out that certain Excise inspecting officers have each 13, 15, 20 or even 21 distilleries to look after. With such a number to attend to, spread over large areas of country, it is

(b.) The taking of stock at the end of each week, and its entry in same book.
 (c.) The return at the end of each quarter, on declaration before a Justice of Peace as to its accuracy, showing the transactions covered by that period. The following is a blank copy of form :—

ESTATES QUARTERLY RETURN.

SCHEDULE F, Law No. 10 of 1878, No. 3.
RETURN of all RUM on hand and made on, or disposed of, from Estate in the Parish of
in the possession of from the day of 189 to the day of 189
Inspecting Officer.

—	Marks.	Numbers.	Punchons.	Gallons.	Proof.
Remainin <i>g</i> on hand } On the Estate, on the day } of to be } At the Wharf } accounted for } or } } Barquader }					
Made from the day of } 18 to the day of } 18 }					
Total to be accounted for ...					

Disposal.	Date.	Bunches and Numbers.	Total Number of Casks.	Number of Gallons.	Proof.	Vessel in which shipped or to whom sold or consigned.
Sold for consumption in the Island (set out <i>particulars</i>) {						
Consumed on the Estate, duty paid						
Exported as per accompanying export certificate (set out <i>particulars</i>)						
Sent to Warehouse at (set out <i>particulars</i>) ...						
Loss by leakage and evaporation						
Re-distilled						
Remainin <i>g</i> to be } On the Estate, accounted for } next givings- } At the Wharf } in via :— } or Barqua- } dier ... }						
Total accounted for ...						

I, do declare that the above is a just and true Return of all Rum made, remaining on hand, consumed on, or disposed of, from Estate, where such Rum was distilled, for the period commencing the day of 189 and ending the day of 189 and that this Return is made out at the Standard Measure of this Island, and that nothing in this Return is intended to evade the Duty on Rum, or is contrary to the true intent and meaning of the Law entitled "The Rum Duty Law, 1878."

Declared to before me this day of 189

I, do declare that to the best of my knowledge and belief the foregoing entries are just and true, and that I have taken all the means in my power to make them so.

Declared to before me this day of 189

18 day of Compared this Return with the Still House Book, this

(d.) The assistance given the inspecting officers in stock-taking, which is usually once a quarter, may be less frequent in many cases, but may be more frequent.

Taking a working day as 8 hours and the annual rate of wages to the distiller as £100, an hour a day, or $\frac{1}{4}$ th, would come to £12 10s. 0d., say, £13.

The distillation of rum lasts, on the average, from 4 to 5 months, say 6 months. The employment would last only 6 months, representing £9 10s. 0d., as the value of the services rendered, say, £7.

A claim is made for one-half the cost of building the spirit store. The claim is, I think, unreasonable, as such a place is necessary for the safety of the owner's property, and, it is admitted, was provided before the advent of revenue interference. But there is little doubt that further expenditure of a small amount was called for to make the spirit stores more secure. For this purpose, considering their condition now, a few pounds would suffice, but, say, £30.

For contingencies, such as the payment of duty on excessive deficiencies in transit, &c., the removal of small balances to warehouse at the end of the season (a requirement that might be discontinued without risk), &c. Payments in respect of deficiencies seldom occur. Say, £5.

Cost of Excise restrictions collected.

(1.) Interest at 6 per cent. per annum on an expenditure of £20 incurred in providing fastenings, cocks, locks, and can pit cage	... ..	£1	4	0
(2.) Interest at 6 per cent. on an expenditure of £30 incurred in securing spirit store in accordance with revenue requirements	... ..	1	16	0
(3.) Annual cost of renewals in cases Nos. 1 and 2	... ..	2	0	0
(4.) For time given to revenue service	... ..	7	0	0
(5.) Contingencies	... ..	5	0	0
Say, £17.	... ..	£17	0	0

Taking an average of the last five years the quantity of spirits made in the Colony was 2,314,996 proof gallons. The value per gallon is, therefore, only $\frac{1}{10}$ th of a farthing. There are 108 distilleries. $\frac{(108 \times £17)}{(2,314,996)} = .76$ of a farthing).

I have not included the distiller's licence in the calculation, on the ground that it is not an Excise restriction as far as its possessor is concerned. If it can be called an Excise restriction it operates in favour of the man in possession, and against an intending competitor wishing to enter on the path leading to the manufacture of an article which is subject to Excise restrictions. In some cases a licence is as much as £50 per year, in others £4, and so much more in the ratio of the working capacity of a still.

It is a remnant of a time when spirit duty was charged according to distilling capacity of still. In such cases it is practically equivalent to spirit duty, and, unless spirit duty itself is to be classed in the category of Excise restrictions, should be excluded.

It is only right to say that I consider the above allowances more liberal than the circumstances demand, and that if the system in England were like that in Jamaica no allowance on exportation of spirits would be made.

Although it was not within the scope of my instructions to discuss the Excise restrictions conferring allowance and surtax in this country, the subject was so much in evidence abroad, and is so misunderstood there, that I think it may be well to place the leading facts on record, and to show the more important restrictions in this country and in Jamaica, for example, in juxtaposition so that they may be more easily understood.

EXCISE, &c., REQUIREMENTS AND RESTRICTIONS.

In Great Britain and Ireland.	In Jamaica.
(1.) Compensation for duty of 1s. a quarter on foreign grain used in the manufacture of spirits (three farthings of the allowance and surtax).	No similar tax.
(2.) Separate written notices, for each removal of wash from fermenting vessels into still; to remove spirits from spirit receiver; to open stills for cleansing; written declarations of the dip and original gravity of wort in respect of each fermenting vessel filled: Final declaration that the whole of the brewings have been collected. Penalties in case of untrue statements of quantity and gravity, &c., &c.	No notice of any kind required.
(3.) Brewing and distilling must be in alternate and distinct periods.	No similar condition.
(4.) Interval of two hours must elapse between the end of the brewing period and the commencement of distillation.	No interference.
(5.) Where sugar is used a special store must be provided for its storage until it is used.	No interference.
(6.) All wort to be run into a fermenting vessel must be collected therein within eight hours from the commencement of the first running.	No interference.
(7.) Fermenting worts cannot be transferred from one vessel into another containing worts.	No interference.
(8.) The prohibition under 7 makes it necessary to ferment wort by the use of brewer's yeast purchased, in respect of each brewing, for that purpose (the source of one farthing of allowance and surtax).	No interference.
(9.) When the brewing period is complete any fermenting vessel from which wash is removed into wash charger (a vessel which a distiller is required by law to provide) for distillation, cannot be refilled until the wash in the last fermenting vessel is removed into the wash charger. And the commencement of brewing is subject to this condition, that the still shall be worked off within a specified time. The distiller is thereby interfered with in regard to the full use of his plant for nearly 48 hours weekly. This, with its contingent arrangements affecting the frequency of operations, makes up for at least 1d. a gallon of the allowance and surtax.	No interference. The wort set up ferments spontaneously.
(10.) Wash can only be removed into the wash charger on the officer unlocking the charging cock of the vessel. After his account is taken it cannot be removed into the still until he unlocks the discharge cock of the vessel.	Not required to provide a wash charger or other vessel intermediate between the still and the fermenting vessel. Wash is run direct into the still. Fermenting vessel may be refilled immediately it is emptied. There is thus a continuous round of uninterrupted work.
	No interference.

In Great Britain and Ireland.	In Jamaica.
(11.) The wash and low-wines' stills are locked. The spirit passes through close pipes and a spirit safe secure and locked, the pure spirit into the spirit receiver, (a vessel which the distiller must provide); the impure (low-wines and feints) into their respective receivers. Keys in the hands of the revenue officer. (12.) Spirits cannot be removed from the spirit receiver without previous written notice and only in the presence of the officer, and not until after he has taken an account of the quantity and strength, and unlocked the discharge cock of the vessel. Access to spirit in receiver not possible except in officer's presence. (13.) The spirit store is secured and locked jointly so that the distiller by himself, or the officer by himself cannot gain access to the inside. (14.) Spirits must be cleared from store, within 10 days of the close of distilling period, for warehouse, exportation, &c. The account must liquidate the charge at spirit receiver, subject to an allowance for natural waste not exceeding 1½ per cent., any loss beyond 1½ per cent., up to 3 per cent., to be charged with duty. In case loss exceeds 3 per cent. no allowance is to be made.	The still is not locked. The discharge cock of the high-wines' retort is. With few exceptions there are no spirit receivers. The discharge cock of high-wines' receiver is provided with a locked fastening. Keys in the hands of the owner or his servant. There are few spirit receivers, the spirit usually flows into an open vessel. In either case the distiller has free access to the spirit, and takes, himself, not in the officer's presence, whatever account is taken. Key with the owner or his servant. Unless in case of the complete abandoning of distillation, spirit may remain in store. The question is one of space. The distiller himself enters his waste in taking stock, which is allowed if considered reasonable; otherwise it is reported for consideration. There is no fixed scale to guide the Inspecting Officer. There is no similar arrangement.
(15.) The distiller is subject to a charge calculated from the attenuation of the wort at the rate of one gallon at proof for each five degrees of attenuation in every 100 gallons of wash. Should the actual produce fall short of this charge from attenuation, the higher charge is enforced. (16.) The distiller cannot be a rectifier or compounder within half a mile of his distillery. He has to incur the expense— (A) Of building separate premises, providing new plant, additional staff, fuel, &c., when, at a comparatively small expense, he could, without interfering with the ordinary work of the still, adapt it to the new requirement. (B) He is allowed to rectify only duty-paid spirits. In his distillery the spirit manipulated would be free of duty. He must bear the cost of conveying the spirit from the distillery to the rectifying house, and the duty loss in rectification and natural waste, at the rate (at present) of 11s. a proof gallon for each gallon of waste. And natural waste must continue	Ordinance contains no provision against rectifying or compounding on distillery premises.

In Great Britain and Ireland.	In Jamaica.
to occur until the rectified and compounded spirits produced have been sold. (This accounts for 24d. of the allowance and surtax.)	No similar return is required.
(17.) A return is required at the end of each distilling period of the quantity of each description of material used, the quantity of wash distilled, the quantity of spirits at proof made, and the quantity of feints remaining.	The distiller is required to keep a still house book in which he is to enter daily the quantity of rum made during the day, to show the quantity of spirits delivered and their destination (see page 12).
(18.) The distiller only prepares request notes for permits.	To prepare and send in a return, at the end of each quarter, showing the transactions, for the quarter, of receipts into and of deliveries from store (see page 13).
	To prepare certificates for the removal of spirits from store for warehouse, &c.
	To take stock in store at the end of each week, and to enter the particulars in still house book.

These examples of revenue requirements in this country and in Jamaica do not quite exhaust the subject for either side. Those given are the more important. But it may be interesting to add that for three locks required in a Jamaica distillery thirty are required in this country.

The following tabular statement will show the position of the Jamaica distiller in relation to the claim for excise restrictions in this country conceded to the distillers.

	1890.		Amount allowed in 1890.	1896.		Admissible for Jamaica at present.
	Scottish Distillers.	English Distillers.		Consolidated admissible by Department.		
				For Un-coloured Spirits.*	For Coloured Spirits.*	
1. Compensation for duty on foreign grain.	3	4	3	4	3	Nil.
2. Prohibition against brewing and distilling at same time.	1½	1½	1	1	1	Nil.
3. Against mixing wort in separate vessels while in process of fermentation.	4	4	4	4	4	Nil.
4. Loss of duty, &c. on rectification and flavouring spirits in separate premises.	3	3	1	2½	2½	Nil.
*5. Colouring matter in foreign spirits	2	2	2	Nil.	2½	Nil.
6. In respect of items accounted for allowance and surtax under Jamaica in 1902.						16% of a farthing.
Value of corresponding items in this country.				4	4	

It is safe to say that, owing to the large increase, since 1866, in the cost of material and of labour of all kinds, masons, carpenters, plasterers, slaters, plumbers,

* NOTE.—Obscuration now determined and spirit obscured charged with duty.

millwrights, ironfounders, painters and coppersmiths, required for distillery building, a revision of Nos. 2 and 4 would undoubtedly lead to some increase in the present allowance and surtax.

I have been asked why such stringent regulations are needed in this country, and my reply has been—

1st.—Because the internal duty in Jamaica is only 5s. a proof gallon, while it is 11s. in this country.

2nd.—Because the annual rum output in Jamaica is, taking a five years' average, 2,314,905 proof gallons. The corresponding average for this country is 59,109,951 gallons.

3rd.—The annual revenue from rum in Jamaica, taking a similar average, is £99,536. The corresponding average revenue from British spirits is £19,909,995.

In Jamaica and elsewhere there prevails serious misapprehension as to the surtax on Customs duty in this country, and I trust that this contribution will help to clear away at least some of the prevailing misconception.

It was urged again and again during my visit, that the whole surtax should be removed, so far as the West Indies are concerned, and the produce of these Colonies (forming, as they do, an integral part of the Empire) admitted to the home markets on the same terms as the distiller at home. My reply was—

1st.—That the distillers in this country were placed in a position to incur loss simply to convenience the revenue, and that it would be unjust to handicap them by admitting into the home markets without surtax the produce of Colonial distillers who were not called on to make a similar sacrifice.

2nd.—That as the consumption of rum in this country was practically stationary, and had been so for between 40 and 50 years, notwithstanding a large increase in population, and a serious fall of the article in value, say, from 30 to 50 per cent., it could scarcely be expected that, where the causes referred to failed to operate so as to send up the consumption, the removal of 4d.* a gallon would produce any tangible increase in consumption. And if after the removal of the surtax the consumption remained stationary, the benefit of that reduction would not reach the producers, but would go into the pockets of the rum importers in this country.

It is observed that since 1851 the population of this country has increased by about 50 per cent. Taking the figures of rum consumption in this country for 50 years, ended 1901, and comparing the first half of the period with the last, the increase in consumption is represented by 5.4 per cent. only. (See appendix H.)

This stationary condition cannot be attributed to more temperate habits in this country, for a similar comparison shows the consumption of British spirits to represent an increase of upwards of 54 per cent. in England, or an average increase in the United Kingdom of 28 per cent.; Ireland showing a decrease of 16 per cent. (See appendix I.)

It may not be without interest to this Colony to know that the rum imports into this country from Jamaica, comparing the same periods, have been reduced considerably; that the imports from British Guiana have not fallen off to the same extent; and that the rum imports from other countries show an increase.

—		Average annual Imports from 1852 to 1876.	Average annual Imports from 1877 to 1901.	Per cent. Increase or Decrease.
Jamaica	... ..	Proof Galln. 2,846,467	Proof Galln. 2,058,672	·27 decrease
British Guiana	... ..	3,160,380	2,886,356	·086 "
Other countries	... ..	1,102,307	1,139,400	·025 increase

But having said so much in defence of the 4d.* barrier in this country, I turn to the West Indies and British Guiana and say to myself, what are the corresponding barriers that face the English distiller in the sunny climes of the West!

* NOTE.—By the Finance Act of 1902 the Allowances on British plain spirits, and on British Compounds, exported are increased, respectively, from 2d. to 3d., and from 4d. to 5d., a proof gallon. By the same Act the Surtax on Customs duty, in respect of "Imitation Rum," and unenumerated unsweetened spirits, imported into this country, is increased from 4d. to 5d., and to 7d. in the case of unenumerated sweetened spirits. Rum and Brandy remain as heretofore, subject to a 4d. Surtax.

The West India Committee, including in its ranks a large number of absentees and others who are interested, some of them very largely interested, in the sugar and rum industries in the West Indies and British Guiana, have never ceased, time almost out of mind, to condemn the surtax on customs' spirit duties in this country. They ask for a free pass into the markets of the Mother Country, so as to place their Colonial distillers on a level, in the home markets, with the distillers in this country. The Committee have been so consumed with a spirit of reform in this country that they may in their zeal for the West have overlooked the case of the British distiller in the markets of the Colonies which they represent.

The following tabular statement, which shows the internal rum duty in each Colony and the duty on imported spirits, may be interesting:—

	Internal Revenue.	Import Duties.		
	Proof Gallons.	Whisky.	Gin.	Compounds.
Jamaica	...	s. d. 5 0	s. d. 16 0	s. d. 16 0
British Guiana	...	9 0	"14 7	"14 7
Trinidad	...	7 6	"10 6	12 6
Grenada	...	4 0	7 6	27 6
St. Vincent	...	4 0	6 0	5 0
Barbados	...	2 6	10 0	10 0
St. Lucia	...	4 0	8 0	46 0
Dominica	...	2 3	4 6	5 0
Montserrat	...	4 0	7 6	7 6
Antigua	...	3 3	7 6	7 6
St. Kitts	...	3 7	4 6	5 0

* Proof with 1d. more per gallon for each degree over.

† When not tested for observation, 18s. 6d.

‡ Liquid gallon.

It will, I think, not be denied, throwing aside the question of an export allowance, that there is certainly no call for a surtax for the Colonies in so far as the produce of the British distiller and compounder is concerned. The protection to native industry ranges from 11d. a gallon in St. Kitts to 11s. in Jamaica. In Barbados the import rate of duty per gallon is just four times more than the internal rate; it looks as if these Colonies were in the enjoyment of an allowance and a surtax both rolled into one. It is singular that the West India Committee overlooked this feature in putting forward their claim to be admitted into the markets of this country on the same footing as the home distillers, and especially is it matter for regret that the strength of their characterization of the small surtax at home had not been tempered by the consideration that they themselves dabbled, to an alarming degree, in the unclean thing.

But it is contended in the West Indies and in British Guiana that the distance from the markets of this country is a handicap that does not affect the distillers in this country. It is therefore considered that this disadvantage of the Colonial distillers should be set against the surtax so as to permit access to the markets of this country without surtax. The following figures will show how far this contention is justified.

The freights of rum from the West Indies and from British Guiana to London, taken from figures supplied by one of the largest rum importers, are:—

Jamaica	...	...	...	24 per gallon.
Georgetown	...	...	...	"
Demerara	...	...	14	"
St. Kitts	...	...	3	"
Barbados	...	...	14	"
St. Lucia	...	...	2	"

If landed at the West India Docks a consolidated rate of 10s. per 100 gallons is charged in addition, which covers, amongst other things, free rent for 16 weeks from the date of the ship breaking bulk.

Freight, &c., for British spirits conveyed from the places named to the London market:—

	d.
Cork	2.15 per gallon.
Dublin	1.9 "
Aberdeen	1.25 "
Glasgow	1.6 "
Inverness (rail)	2.7 "
Inverness (sea)	1.95 "
Leith	1.25 "

But it is not a little remarkable, although probably due to the kind of package, that the freight paid for sending cased British spirits to the West Indies, and they are frequently sent in this way, is not by any means the same as it is for bringing rum, in cask (the usual medium) from these Colonies. The following figures refer to cased spirits, and are taken from results furnished by one of the largest shippers of British spirits in London to the West Indies:—

	d.
Georgetown }	8.4 per gallon.
Demerara }	
Barbados	8.4 "
St. Kitts	9.4 "
St. Lucia	9.4 "

The following figures will show the freight for spirit in cask from London, and in cask and case from other places, furnished by exporters:—

	Georgetown, Demerara.	Trinidad.	Barbados.	St. Lucia.	St. Kitts.
London to (54 galls. casks) ...	d. 3.2	d. 3.2	d. 3.2	d. 3.5	d. 3.5
Glasgow to { casks	4.27	4.27	4.27	5.1	5.1
{ cases	7.4	7.4	7.4	9.2	9.2
Edinburgh to { casks	4.27	4.27	4.27	6.1	4.27
{ cases	7.4	7.4	7.4	11.0	7.7

It is understood that freight rates vary from time to time, and even depend somewhat on the quantity sent, but I am unable to discover any reason why these should be so much in excess of the usual freights from the Islands.

To sum up the case. The distillers in these Colonies have to face in the markets of this country a 4d. surtax, amounting to a little over three per cent. on the internal spirit duty. The distillers of this country have to face in the Colonies a highly protective tariff, ranging from, say, 25 per cent., the lowest, to 220 and 330, or even 400 per cent. on the internal duties. The cost of freight from these Islands and from British Guiana to this country is not more than the corresponding cost incurred in bringing such produce to the London market from ports and places in the United Kingdom. As if these tariff barriers did not give sufficient protection to the Colonies, they enjoy the further protection afforded by the heavy cost of sending cased spirits into these Islands, which comes to nearly four times the cost of freight for rum imported. Besides, it appears from the figures obtained that the exporter of spirits in cask has to pay a much higher freight for his goods than the importer of rum in cask.

These are undoubtedly peculiar passports to that favourable consideration in the home markets which the West India Committee advocate, equality of treatment here, inequality of treatment yonder, even to 400 per cent.

BRITISH GUIANA.

The number of rum distilleries in this Colony is now 53, a reduction of 56 in the number since 1881, when it stood at 109.

DISTILLERY PLANT.

The stills used in this Colony are much larger and of a higher class than the general run in use in Jamaica. The quantity of rum made at each estate daily varies from a minimum of 194 gallons at the smallest estate to a minimum of 2,285 at the largest.

There are stills of the Jamaica pattern in use, but in which the retort is practically only the foundation for a rectifying column of considerable height. Down this column inside, a spiral pipe descends, through which cold water is running whenever distillation is in progress, and against which the spirit vapour strikes as it ascends in the column before it passes into the worm.

Many of the stills in use consist of ordinary cylindrical wooden vessels built of staves and strongly bound with hoop iron. These wooden stills have domes made of copper that cover a somewhat narrow opening in the head of the vessels, leaving a large surrounding flat area against which the spirit vapour must beat inside and fall back for a fresh start, necessitating, I should think, some waste of fuel.

Coffey's still and other rectifying stills are in use on certain estates.

This Colony differs from Jamaica in that it has no open can pit. The spirit passes through secure pipes, flows into a safe or "test case," as it is called in the Colony, and usually falls into a copper receiver, secured and locked, capable of holding from 300 to 400 gallons, although sometimes it goes direct from the safe into the vat in a pint stop. This receiver, as well as that for impure spirits, is provided with a glass gauge to show the number of gallons it contains. The distiller, after taking note of the quantity, as a check on the spirit store, is able, at pleasure, to allow the contents to run into the vat in store. All spirits are removed into store by gravitation or pumping.

The security under this arrangement is much better than that afforded by the Jamaica system. Still even this better system is only another edifice built on confidence in the honesty of the owner's servants in charge of the distillery. The keys are kept by the servants. The arrangements described may obviate petty pilfering by labourers, but it scarcely interferes with abstraction on a considerable scale, if the distiller be inclined that way.

The same weak element pointed out in the case of Jamaica is also present in the better system of this Colony. There is no account taken for the revenue independent of the distiller. Had the spirit receiver, provided in a considerable number of cases, been large enough to serve as a charging vessel, with the further proviso that the keys, up to and including this vessel, were to be kept by the Commissary—the Colony name for the Surveying Officer—instead of by the distiller, the security, all things considered, might be accepted as satisfactory enough to allow the distiller to have complete freedom in the store as at present, subject, of course, to the rendering of certain accounts and returns to be hereafter noticed.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The worts in this Colony are prepared solely from molasses, usually molasses from second sugar, or even of a lower grade, merely by dilution with water to the required density. There is no revenue interference with a distiller's operations in the fermenting room any more than there is in Jamaica, and it is therefore unnecessary to enter it to a lengthened description dealing with the ground already covered in the case of Jamaica.

The skimmings, instead of being mixed with the molasses' wort, as in Jamaica, are

pressed out by means of hydraulic presses, and the expressed juice is added to the ordinary cane juice. The remaining sediment, consisting of a dark mass made up of inorganic and organic matter, is thrown away as useless.

The time taken for fermenting wort in Jamaica is from 10 to 12 days. In this Colony it is completed in 34 to 36 hours. Fermentation starts so quickly that certain traces of its presence can be detected on the surface of the liquor within an hour or two after the wort is set up. No yeast or other ferment is used, and the only aid required consists of a small proportion of sulphuric acid to invert the cane sugar, with some ammonia or ammonia salt to help the yeast formed to do its work.

As a general rule the estates in this Colony are large, and, in the absence of quick fermentation and rapid distillation, there would be such an accumulation of molasses as might prove inconvenient, not to mention that this article, if exposed long, deteriorates somewhat rapidly in a tropical climate. It is not improbable, however, that quick fermentation followed by rapid distillation in highly rectifying stills, in British Guiana, may account for the lower quality of rum produced in this Colony when compared with Jamaica, where the slow process is in operation.

As in Jamaica so also in this Colony, distillers are left complete freedom in dealing with the spirit in store. The spirit may be coloured, filled into casks for delivery and delivered. The capacities of casks are ascertained by weight, and the accounts are kept in proof gallons, differing in these respects from the incorrect and imperfect system in Jamaica, and in many other Islands.

EXCISE REGULATIONS AFFECTING DISTILLERIES AND OTHER SOURCES OF EXCISE REVENUE.

The distiller is required to make entry in the distiller's book of certain particulars of wash set up, and sent to still, and of produce obtained from the still, as well as to show how the spirit has been disposed of. For form see following copy.

DISTILLERY BOOK.

FLASKYATION

Wash Account										Spirits Account									
Set up.					Delivered.					Remarks.					Remarks.				
Temperature.					No. of Gallons.					Strength.					No. of Liquid Galls delivered each day.				
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The following restrictions find a place in the Ordinance.

- (a.) Not less than 20 gallons to be delivered at one time for exportation.
- (b.) Not less than 25 gallons for home consumption.
- (c.) Distiller cannot receive more than 45 gallons a year, duty paid.

The distinction made between "a" and "b" seems somewhat wire-drawn, and it is always inconvenient to be burdened with more than one such limit. The limit of 45 is quite exceptional, the estate owner being, it is assumed, the person referred to.

The distiller is liable for the duty on deficiencies occurring between the drawing off in spirit store and the receipt of the spirit into a warehouse, provided they exceed a certain limit laid down. He must enter into bond to cover the removal of spirits, differing in this respect from Jamaica.

The restrictions mentioned constitute the more important, imposed on licensed distillers, in the interests of the Revenue.

The deficiencies that occur in spirit store in the Colony are most unsatisfactory, they range from nothing in several cases to .15 per cent., and from that up to 10.46 per cent. In such a tropical climate the cases first quoted are simply inexplicable as the result of natural causes. The last mentioned is much too excessive. I cannot see why a certain scale of loss based on waste in warehouse (if no other experience is available) should not be adopted to guide the officer in concluding what to allow and what to refuse. At one time a limit of 2 per cent. was laid down, and, if still in force, it appears as if it is disregarded in practice. There is such guidance in the case of removals to a warehouse. Small losses referred to, which have been written off by the commissaries, and the cases in which there are no losses must be regarded as resulting from adjustments made with spirits which had not been entered in the distillery book. In other words they represent accounts that do not show the true state of the case, usually termed "cooked" accounts.

Certain stocks were taken by commissaries in store in my presence, in some of these I was struck by the routine and unsatisfactory manner in which the work was done. The distiller, as a rule, I was informed, takes stock daily, and I felt satisfied that certain officers accept practically the distiller's account without seriously troubling themselves as to its accuracy. I was unable to satisfy myself that the dimensions of spirit vats in store had been taken for Revenue purposes, or that the ascertaining of the distiller had been checked, and I fear that, at least in many cases, the hoops of these vats have been driven yearly to tighten them after the harvest interval without being regauged. In stock-taking the glass gauges on vats are consulted, where they exist, for the quantity contained in the vat, but where caramel is much used they become clogged with sediment and unreliable. In some cases this deposit has been enough to prevent the spirit from leaving the gauge tube when the vessel itself was empty. In many places their use has been discontinued. The dips of the vats are not always taken by the officers themselves. In some cases spirits were overlooked in taking the stock. I regret to have to say that I came away impressed by the conviction that there was shown a want of true appreciation of the importance of stock, practically the only check left to the Revenue, and that the operative distiller himself is the real stock-taker.

There is no excuse for the display of such laxity, but, possibly, it is not very surprising, as the commissaries have such a multiplicity of other important duties to perform, that distillery inspection is looked on as merely of secondary importance, and is apparently dealt with in a routine and perfunctory manner. The extraordinary thing is that there is no superior official, with sufficient spare time, to move about to check the work of the officers, to see that it is promptly and efficiently done.

Since the death of the late Chief Commissary (Mr. Turner) these officers have, it is understood, had two supervising heads instead of one. The Comptroller of Customs for distilleries and the Receiver-General for other duties. The arrangement appears a very undesirable one in the common interests of all concerned, and is likely to create unnecessary friction. During the short time I was there, I found sometimes, when the Comptroller of Customs wanted the services of a commissary in assisting me, the plea was that he was engaged in some work for Receiver-General. The Receiver-General always courteously arranged to meet my convenience.

In my judgment a capable officer, with complete knowledge of distillery survey

and inspection, is needed in British Guiana, whether the locked system be or be not adopted, and such a man should be in a position to deal with and supervise as well the other work which the commissaries perform. It will be all the better in the interests of the Revenue to have a man whose presence would inspire the commissaries to a zealous discharge of their duties. Such a man is needed, also to educate the present and prospective commissaries in distillery survey. Coffey's and other rectifying stills are to untrained men complicated pieces of mechanism. The connections, cocks, and fastenings on these stills and on much simpler apparatus, call for some experience in dealing with them, so as to ensure complete security for the Revenue. I had to point out several instances in which it was practicable to abstract spirits without removing or interfering with the locked fastenings, and this was not confined to Coffey's still, which is complicated.

The suggestion now made for the employment of a capable officer for the inspection of distilleries and control of the commissaries is not new, but is only the revival of an old plan that existed for many years down to 1892, and since then fitfully down to a later period, say, 1893-6. As matters stand now there is no control either of distilleries or of the commissaries who survey them. It is absolutely impossible that the Comptroller of Customs could undertake this work considering the extent and importance of his other duties. It is as absurd to expect the Receiver-General to do so with any hope that he could give it the necessary time. If taken in hand by both officials in turn, even if this were practicable, they could not deal with it as it should be dealt with.

But hitherto the hands of the Court of Policy appear to have been paralysed by a combination between the Combined Court, that takes the initiative in all money bills, and the unofficial members, to defeat, apparently in the planters' interests, any step calculated to make inspection of distilleries and of the Officers who have the survey of an important industry effective, instead of being lax and ineffective with no check worth naming. In saying so much I have not thought of imputing dishonesty to the planters or to their responsible Managers, but these men cannot possibly be for ever present to safeguard the property, and it is a very trite but true observation that the Revenue might be endangered through the culpable negligence or carelessness of a servant who had no dishonest intention.

That the illicit appropriation of rum to a considerable extent goes on during the distilling period is difficult to deny in face of statistics to be quoted, and considering the extent of the rum industry in this Colony, it seems scarcely creditable that it should remain as yet, to all intents and purposes, unprotected. One has not to go far back to find abundant evidence of the hostility of the sugar interest to any step in the direction of greater security. One is almost tempted into asking what object could they have had in offering such a persistent opposition to any reasonable proposal at a period when sugar was at a fair price! They have a right to obtain reasonable consideration, and to be guaranteed against hindrance, or unnecessary interference with them in their business. Having secured these, and I see no difficulty in the way, their opposition would become factious.

The attenuation check existing in this Colony should, if intelligently applied, afford a useful index to the spirit produce. Heretofore no check has been applied at the distillery by the officers on the accuracy of the quantity of wort set up, or on the density before fermentation has commenced, or after it is completed. To make this check reasonably effective the officer should be provided with the means of applying it. It is admittedly difficult to do much sampling of wash for analysis. The heat is so great that unless the sample is delivered to the analyst within a short time after it is taken it is scarcely in a fit state for examination.

The presumed produce from wort which is, for this Colony, .75 of a proof gallon for each $\frac{1}{2}$ of attenuation in a hundred gallons of wash, is too low, and should, I think, have been at least .9. This is not material, however, seeing the evidence from attenuation is not to be used except as an index of produce.

It is admitted that the distillery arrangements in this Colony are, in point of security, much superior to what obtains in Jamaica. It is matter for regret, however, that they stop short at a point which largely discounts their value for Revenue purposes whatever they may effect in the direction of reducing petty pilfering by labourers. Practically speaking the officers do not control the operations, as the distiller is now

in the position of being his own Excise officer. Had a charging vessel been erected, at some point intermediate between the test case and the spirit store, a charge could be taken by the officer, in presence of the distiller, which would control the operations in store to the advantage both of the Revenue and the owner. The cost of such a vessel should not exceed the rate of 2d. a gallon capacity.

Although the outside situation is in every way preferable, so as to leave the distiller with similar freedom to what he now enjoys in spirit store, it is possible that a vat or two in spirit store might be adapted for use as receivers to be filled alternately. In such a case the inflow connections would have to be locked so that the spirit could be run into the proposed vat receiver and not diverted into any other vat. The charging cock must be locked before a charge is taken and remain locked until the vat is empty. The fastening on the discharge cock would be removed whenever the charge is taken, so that the distiller could draw off his spirits into carrying casks.

The arrangement would necessitate the surrender by distiller of the keys of spirit safe, of vats, and other vessels containing spirits, excepting the key of the spirit store. The system of spirit vat receivers would not differ much from that in Trinidad, where no spirit receiver is provided, but where the discharge cocks of vats are locked, and necessitate the presence of an officer to unlock as a preliminary to filling into carrying casks. The plan of a charge vessel, coupled with freedom in store for the distiller, appears, at least so far as interference is concerned, more acceptable than the Trinidad system.

Generally speaking there is a certain period of the year during which rum is distilled, and this period coincides more or less with that in which the commissaries are engaged in the less important task of recovering arrears of licence duty and other payments. With aid, during this period, of a less expensive character, the commissary should be able to give undivided attention to distilleries so as to attend to take charges and to allow the spirit receiver to be discharged. By some such arrangement they would, I think, be able, at small additional cost, but with increased expenses for locomotion, to deal with the new system effectively. The vats to be used, or the receivers that may be erected, should be capable of containing the produce of one, three, or six days' distillation, according to the magnitude of the rum output at the particular distillery.

There is in this Colony, as there was in Jamaica, a conflict of opinion as to the extent of leakage of rum consumed not duty paid. There is admittedly considerable loss, part at least of which is said to occur in transit either by railway, or barge on navigation canals, which are common in the Colony, and used for transporting the spirit from inland places to warehouse or to vessel, at ports or places, for shipment abroad. In the case of export at least, it is understood that shipment may take place without the spirit passing through the hands of the local officials. As to transit by railway, one would expect that a company acting in a public capacity as carriers should, as in this country, be responsible to its patrons for the property it carries. At one time in this country locked vans were provided by merchants and by railway companies for the removal of spirits. These probably exist still, and in any case the railway provides locked vans for this and other purposes. If the estate owners will not take the trouble to remove their property in properly decked barges, secured so as to prevent access to the spirit by their men during transit, duty should be claimed on all losses, during transit, in any case in which pilfering is discovered. Previous notice is required to be given of each removal for export, and a proportion of such consignments should be examined and dealt with according to the result of examination. It is very difficult to see hardship in requiring properly secured barges.

Under the present system there may be pilfering on barge and on shipboard, and as the Customs in London, in the absence of documentary evidence of quantity removed, take what is in the cask without question, a considerable quantity may be consumed undetected. The owner can have no remedy, as responsibility cannot in the circumstances be brought home to the respective carriers.

The following figures are interesting. They show the number of detections made during each of ten years of persons found in possession of spirits of which a satisfactory account could not be given :—

Year,	Detections made in the Distilling season.		Detections made when there was no Distilling.	
	No.	Fine.	No.	Fine.
1891-92...	43	£ s. d. 74 3 4	6	£ s. d. 52 1 6
1892-93...	24	83 1 10	5	20 0 0
1893-94...	19	45 8 4	1	Nil.
1894-95...	10	35 0 0	4	15 4 8
1895-96 ..	10	114 11 8	4	5 4 2
1896-97...	6	53 0 0	7	151 12 10
1897-98...	29	509 7 6	6	33 0 0
1898-99...	14	450 18 4	9	14 16 10
1899-1900	9	115 17 6	8	381 13 0
1900-1901	8	19 1 0	13	781 5 0
	172	1,675 9 6	63	1,454 18 0

These figures, it should be remarked, do not include detections made either in stocktaking or on transit, they do not include either illicit stills or detections made at distilleries by officers. The last mentioned are few.

It is somewhat significant that the number of detections made during the distilling season out-number by nearly three to one those made outside the distilling season.

One sees, not infrequently, cases in print of illegal possession of spirits, and one hears also, in rare instances of course, of a cask disappearing from a rum store. In one case brought to my notice three casks had gone which, I understood, had never been recovered.

The managers, as a rule, complained that the workpeople appropriate rum whenever they can do so, and that the coloured people will purloin and drink even so nauseous an impure spirit as low-wines of a very low strength.

LICENCES.

Spirit Retailers.

Under this head I purpose dealing with a peculiar system in practice in this Colony in connection with the grant of a licence to, and the payment of rum duty by, spirit retailers. By this system the payment of rum and of licence duties is mixed up together. The system cannot well be stated more clearly and simply than it is in the following quotation in the shape of an example taken from a report, dated 4th October, 1898, made to the then Governor by a Commission appointed to consider this subject. The Commissioners say, in paragraph 13, "Assuming that the sales of a retailer for the previous calendar year are 1,205 gallons, and the Combined Court (for finance proposals) has fixed the total incidence at 2.25 dollars a gallon (proof it is assumed) to be collected, eight-ninths in licence duty and one-ninth in excise duty (i.e., on rum), the annual licence duty for the forthcoming year would be 2,410 dollars which should be collected monthly in advance."

The quantity sold yearly by the retailers is ascertained by means of a quarterly stocktaking, which I shall show later on, is unreliable. The year's aggregate sold, or shown out of stock in the example quoted, was 1,205 gallons, and on this quantity the next year's licence is based.

- (a) The retailer may, if it suits him, clear the whole of the spirit at once at the nominal duty of 50 cents a gallon, paying up the balance in equal monthly instalments. He is thus benefited at the expense of the general taxpayer.

- (b) The difference between the charge of duty-cum-licence and the internal rum duty is only 10 cents (2.25-2.15=10). The annual licence paid, in this connection, over and above the ordinary rum duty is therefore only about £25, that is if the ordinary rum duty had been paid when the spirit was delivered from warehouse.

The retailer is therefore allowed to have rum practically on credit and to pay annually £25 for a licence for which he would pay, say, £200 in the Port of Spain, with a population of about 42,000 to upwards of 48,000 in Georgetown. I am not quoting the Port of Spain system as a pattern to copy, as the system of imposing one rate of licence whether the house be a palace or a wooden shanty does not commend itself to my judgment.

He is bound to pay the sum fixed upon, even if he is unable to sell within the year the quantity on which his licence was fixed. He may sell more or less. There is, therefore, perplexing uncertainty and a prospect of an appeal for a refund, which is not allowed. If he sells more he pays just the same rate of duty (2.25 dollars a gallon) for his rum. During the year the retailer is kept in perplexity over his sales. He will in such a case probably insure himself against loss from diminished sales by a higher price, possibly in reduced quality to start with, at the expense of his customers. He is also kept in perplexity as to the incidence that may be fixed next year by the Combined Court. Sales in point of extent, may be affected by the state of the weather, and thus the retailer is made the victim of circumstances. If he paid the full duty on rum as he wanted it, all this would be avoided.

Possessed of a considerable quantity of rum he is able to doctor the article at leisure and to call the manipulation aging it.

By this system a monopoly is created in favour of the spirit retailer at the expense of the community, and any new applicant for a licence has to run the gauntlet of the monopolist, and if successful the Government may have to make restitution or repayment to the man first in possession.

The gain to the spirit retailer is a solid one. What is the gain to the revenue? Absolutely none, that I can see. Does it free the revenue of risk from the introduction of an article that has not paid duty? I cannot see that it does. It offers instead a strong inducement to sell as little duty-paid rum as may be and as much smuggled rum, if it can be procured, as possible, in order to show as small an aggregate sale as possible, so as to reduce for the following year the payment to revenue for rum-cum-licence duty. That the arrangement does not safeguard the revenue from risk may be inferred from the following query in the instructions to officers, issued by the Excise Board, which must be answered annually in all cases of reduced sales.

"C." "Whether you have any reason and, if so, what, to suspect that rum has been obtained from any other source than the bonded warehouse." The quotation supports the view just expressed that the system does not free the revenue from risk. Then, it may be asked of those who defend it, what does it do?

If the system fosters the belief that the monopoly keeps the spirit retailer on his good behaviour as regards touching illicit rum, what is the difference in this respect between him and a retailer elsewhere who may possibly give bond for good conduct, and, if not, who is possessed of a valuable licence which he knows he will forfeit if he engages in illicit traffic, and incurs, in addition, other consequential penalties? None that I can see, excepting that the monopolist thrives at the expense of public interests, and is himself a bond slave, subject to circumstances which he cannot control, while the other man is free.

I was present at a stocktaking on the premises of one of these spirit retailers in Georgetown. There were at least 15,000 bottles of all kinds, ranged on shelves and elsewhere, containing rum, wine, brandy, whisky, &c. There were also a considerable number of standing casks, large and small, callipered, it was said, for capacity, in evidence. The dips of these casks were taken in some cases through the middle of the head, others close to the chimb. Some six bottles were taken to represent the rum, in, say, 7,000 bottles of rum, for strength. I assume for capacity that the bottles were taken as six to the gallon as they were not measured in my presence. All spirits in stock except rum are disregarded.

There was obscuration in certain spirits assessed for strength, but no sample was taken for analysis. The cask containing the substances for mixing with the spirit and thus creating obscuration I saw and examined. The samples taken from the store vats were drawn from taps near the bottom, and it is impossible that they

could represent a fair average strength. Indeed it is not possible to take with any regard to accuracy a stock of such magnitude in the time occupied at the premises on the occasion, and, if taken properly, would require at least a whole day, if not two, and the waste in the spirit retailer's property would not be inconsiderable.

This account is misnamed a stock, which, in the usual acceptation of the term, means a balance of receipts and deliveries taken with a view to arrive at the quantity remaining on hand, so as, speaking from an excise point of view, to deal with any increase found, which might indicate the presence of illicit spirits. The stock account, in point, is not taken for the purpose of checking the introduction of illicit rum. For any check purposes the account is absolutely useless.

In any case the spirit retailer should, I think, be put in a position to order his rum as he likes, and required to pay the full internal duty before it is cleared from warehouse for removal into his private stock. He should pay a reasonable licence, probably rated according to the value of his premises, which, in this country, is held to afford a rough indication of the extent of the business he does. This is the system adopted in Great Britain and Ireland. It is not by any means an ideal system. I see no reason why these licences should not be tendered for, or be knocked down to the highest bidder, subject to moral and financial guarantees, &c. Why does the Colony not try an experiment on the lines of Earl Grey's Trust system, which is spreading so very rapidly in this country, and thereby secure in addition to the licence for Colonial revenue, the profit from the sale of spirits, &c., and devote it to some useful municipal or other purpose?

This, or some similar arrangement, would give sensible relief to the commissaries and by relieving them from the discharge of work relating to an impracticable, not to say impossible stocktaking, they would have more time to devote to important and useful work in safe-guarding the revenue at distilleries. The police, it is understood, co-operate with the officers in suppressing illicit practices. The grant to the police of a reasonable reward for each detection, proportioned to its importance, would probably lead to the swifter repression of these practices.

The discontinuance of the system of duty-cum-licence would result in a saving of stationery, as I observe that a considerable number of forms are required in connection with it. It would give some relief to the Excise Board who would, I assume, still consider the grant of new licences, and the renewal of existing licences, as the licensing authorities do in this country. They would thus retain the power to restrict the number of licences so as to make them proportionate to the needs of the community, and in the exercise of that power they could keep in view the behaviour of the licensee.

MANUFACTURE OF IMITATION BRANDY, AND WHISKY, AND OF COMPOUNDS AND TINCTURES, FROM RUM DUTY FREE.

It may be interesting to place on record the fact that a rectifier, keeping a rectifying still, exists in Georgetown, who is engaged in making imitation brandy, and whisky, and in producing bitters and compounds. The rum used is obtained duty free, manipulated, it is said, in bond, but really without any revenue interference whatever excepting a quarterly stock. Duty is paid only when the manufactured article is to be delivered for consumption in the Colony. Any loss in manufacturing not exceeding 12 per cent. is allowed, and in addition 1 per cent. for waste in standing stock in cask. The imitation whisky is made from rum rectified so highly as to make it a neutral spirit, and this spirit is also the basis for brandy, both being flavoured so as to represent the genuine articles. The work was standing idle at the time of my visit, and the imitation spirits named did not appear to be much in demand. The bitters appeared to be an excellent article. The rectifier has had, I was informed, as much as 6,000 gallons free of duty, standing as a debit in the stock book at one time.

There are two other cases in which operations on a very limited scale are carried on for the manufacture of tinctures and bitters, also from duty free spirits. The stills used in the last two cases are of the most primitive description, but they are not employed to rectify spirits.

Considering the somewhat loose supervision of these places by the revenue officers, and the presence of so high a spirit duty as 9s. a proof gallon, the experiment seems in the nature of a somewhat bold venture, viewed in relation to the use of duty free spirits. The imitation whisky made from neutral rum spirit at 9s. a gallon, would lead itself to profitable admixture with whisky imported at a duty of, say, 14s. 7d. a gallon.

EXPORT ALLOWANCE.

Excise Restrictions, Estimated value of.

There are, as already stated elsewhere, no excise restrictions of moment in the fermenting room. No interval is required to occur between the brewing and distilling periods. Wash may be removed without let or hindrance into the still. The stills, connecting pipes, cocks, test cases, &c., are required to be secured, and it is necessary to have a spirit store also, secured and locked. But in all cases the key remains with the owner's servants, not with the revenue officer.

It may be at once said that the securities provided are only adequate to the protection of the owner's property. This was again and again frankly admitted in the Colony by managers and others. Other managers and attorneys, however, hold that a book-keeper is employed specially to attend to the clerical work of the revenue. One manager went so far as to tell me that he employs an overseer for the purpose, to whom he pays an annual salary of £200, with all found. I was invited, seriously I hope, to believe that this man, who could do the said revenue duties on an average in one hour a day, but, say, two hours, has nothing to do but attend to this work, and that although the rum crop season occupies only, say, six or seven months of the year, this man is retained during the whole year to attend, as it was said, "to fill a cask or two" as they are required in spirit store. It may interest the generous planter who pays this salary for work done under such easy conditions to be told that elsewhere, in British Guiana, on estates of equal, not to say greater importance, corresponding work, including attention to fermentation and other distillery requirements, was performed by coolie boys at the rate of 20 dollars a month. Of the excellence of the coolie boys' book-keeping work I cannot speak too highly.

I admit the clerical work is considerable, and I am proposing changes by which it will be reduced, without interfering with its value as a check on distillery operations. The addition of the tare to other particulars required to be put on the heads of carrying casks should, I think, be abandoned, as of no practical use. There can be no guarantee of its accuracy. As I have stated already in regard to Jamaica, so also in respect of this Colony, there can be no tangible excise restrictions where a distillery is, as to locks and fastenings, under the immediate and complete control of the distiller himself. Beyond the cost of such requirements as the revenue authorities may compel the distiller to provide, there is nothing to deal with excepting the clerical labour, and even this work is only what would have to be done, in a large measure at least, if there were no excise on rum. Some such book, as the distillery book, would of necessity be kept for the entry of particulars required for completing the estate book, excluding, of course, the monthly return. The claim for assistance and service is new and has not been urged by the distillers of this country, but if the cost of service, &c., is to be considered the following figures represent my estimate:—

	£	s.	d.
(1) Interest at the rate of 6 per cent. on an expenditure of, say, £50 incurred in providing fastenings, locks, cocks, test cases, in compliance with revenue requirements	3	0	0
(2) Interest at the same rate on an expenditure of, say, £50 in providing for and executing any additional revenue requirement in securing the spirit store	3	0	0
(3) Annual cost of renewals in cases 1 and 2	5	0	0
(4) Time given to clerical service and returns for revenue purposes, two hours a day at the rate, say, of £100 a year—for half a year, and for a day, say, of eight hours	12	10	0
(5) Contingencies such as the payment of duty on excessive deficiencies, &c.	10	0	0
	£33	10	0

Say £34.

Taking the average of the last five years the quantity of rum produced is 3,764,801 proof gallons, the export allowance would be at the rate of .45 or 45/100 of one farthing.

TRINIDAD.

There are in this Colony, including Tobago, only six sugar estates on which rum is made, although there are 59 estates on which sugar cane, more or less, is grown.

DISTILLERY PLANT.

The distillery plant in Trinidad is, on the whole, very fair, the stills used are either Coffey's apparatus or Blair Campbell and McLeen's patent. The latter is constructed on the same principle as Coffey's with a different arrangement of plates, over which the liquor travels, and through which it descends from one compartment to another. (Unfortunately these stills were at work at time of my visit so as to prevent internal examination.) The stills seen are adequate to the production of large quantities of spirits. The Coffey still on one estate is capable of disposing of about 1,600 gallons of wash per hour, and producing during the crop season about 386,000 gallons at proof. The stills used in Tobago are small, each capable of producing only about 400 proof gallons per week.

The pipes, fastenings, safes, and connections, appear on the whole satisfactory. They were in certain particulars pointed out not quite up to the mark.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The wort is, as in British Guiana, made from molasses simply by dilution with water, set up to ferment, and removed to the still when fermentation is completed. The emptied fermenting vessel may be refilled without delay. There is therefore successive and continuous brewing and distilling similar to that described as to British Guiana.

The spirit flows from the worm end into a locked safe, or "test case," as it is called in the Colony, and from the safe into a vessel capable of holding about 400 gallons called a spirit receiver, or direct into the spirit store. In one distillery the spirit on its way to store vat passes through an alcoholometer, but as its adoption was, it is understood, purely voluntary, and as a similar apparatus which was adopted generally in British Guiana was, on more than one ground, discarded, the one seen in use now, calls for no notice.

The keys of all locks up to and including those on spirit vats in store are kept by the warden, or, as he is called for Excise work, the Supervisor. The key of the store door remains in the distiller's hands.

The Supervisor attends to unlock the discharge cock of any store vat from which spirits are to be drawn off into carrying casks, or to unlock other fastenings required to be opened for certain other purposes. By his instructions he cannot absent himself from the spirit store until the drawing off has been completed and the discharge cock locked.

EXCISE REGULATIONS AFFECTING DISTILLERS AND OTHER SOURCES OF EXCISE REVENUE.

The instructions given to supervisors for their guidance proceed in the right direction, so far as they go. They would, however, be better had they been more explanatory and so arranged as to deal with the distillery plant and arrangements, step by step consecutively, from the commencement to the end of the operations.

The spirit ordinance is comprehensive. It does not require brewing and distilling to be carried on in separate and distinct periods as in this country. No provision is made for the compulsory erection of wash chargers or spirit receivers. It makes no provision for taking account of spirits for revenue purposes at any point anterior to the spirit store. There is no check on the manipulation of spirits in the store itself. No spirit stock is taken.

The pure spirits must run inside secure pipes and through the test case, and either fall into properly secured vessels on their course to the spirit store, or run direct into spirit vat inside store. The low-wines and feints or impure spirits, are conveyed in the same way into vessels properly secured. It may be said that beyond the requirements mentioned, the Ordinance No. 2 of 1892 remains practically a dead letter.

The distiller is required by ordinance to keep a distillery book in which he is to enter the quantity and gravity of wort "set up" for fermentation, show the pro-

Another return is required of which the following is a copy of the form :—

" Return of all permits granted to distillers, and of all duties on rum and other spirituous liquor received by me from the _____ to _____ the _____ day of _____ 189 _____

Date.	No. of Permits.	No. of Warrants.	Name of Distiller.	Place of Distillation or Ward Locality.	Description, Mark, and No. of Vessel containing the same.	Proof of Strength.	Duty Paid.	To whom and where sent.	Remarks.
							£ s. d.		

* I am at a loss to understand what " Proof of Strength " means.

Beyond a transcript of a journal, in which the supervisor records his daily work, which he has to send in fortnightly to the Receiver-General, I saw no other returns which relate to distillery.

Since I left Trinidad, however, another form has reached me, of which the following is a copy :—

" Returns of all rum and other spirits manufactured in and sent from my distillery on _____ in the ward of _____ 189 _____

Name of spirit.	Quantity manufactured, No. of Gallons.	Proof.	Removed from Distillery in Packages.	No. of Gallons.	Proof.	No. and Date of Permits.

This form appears to have been prepared for the distillers' return which, as already stated, is required by ordinance but not made. The form appears to have been signed by a supervisor or other officer who has cancelled the words " Licensed distiller " at the foot of the form paper, apparently for the purpose of adapting it for the return which he himself has to make.

Provision is not made in any return in use for an account of spirits produced, and therefore it may be accepted that such an account does not exist, and in the absence of evidence to the contrary I conclude that the drawings off from vat in spirit store are the first and only account rendered at present.

Even if the return requested in paragraph 9 of the Supervisor's Instructions, of the quantity remaining in store, when the "tests and gauges" return is made, were furnished, its value may be estimated when it is said:—

- (a) That it would give only liquid gallons.
- (b) That it is not intended for use in stocktaking.
- (c) That at the time the account is taken, a Coffey's still, for example, may be delivering spirits into vat at the rate of over 100 gallons per hour.

At the first distillery visited it is no exaggeration to say that under the existing system, 1,000 gallons of five times that quantity or more might be removed from store without the supervisor; in view of the system of account, being a bit the wiser. And in referring to that distillery, I do not mean for one moment to question the integrity of the local managers, but in a large work like this it is impossible to restrict always responsibility within narrow limits. In the interest alike of the owners and of the revenue it seems desirable to introduce a proper system of accounting reasonably satisfactory to both.

The Receiver-General has granted an indulgence in respect of the same distillery for leaving the tops of the vats' man doors open. It does not appear that a similar indulgence has been granted elsewhere in the Colony. This distillery then stands alone in possessing this privilege. A distinction like this presents a somewhat invidious appearance, having a look of unfairness to other distillers, especially as I cannot see why the object in view, in making this distinction, could not have been equally well attained through the medium of the supervisor's visits to the distillery.

The sugar estates have contributed largely to the prosperity of the island, and the owners and their responsible managers are undoubtedly entitled to receive fair and reasonable treatment, but surely this cannot be held to mean that considerations of safety and prudence are to be subordinated to a dread of their frown such as evidently possesses the minds of certain officials in the Port of Spain so as to paralyse their action. It should never be overlooked that the rum duty is about one sixth of the whole revenue of the Colony. I did not meet unreasonable men either as proprietors, attorneys, or managers, in the West Indies. Like sensible men they would not object to the introduction of improvements, provided they could see in them additional safeguards to property without serious cost.

To provide a charging vessel would not cost much, say, £12 for one to hold 1,000 gallons, and in the same proportion for larger vessels. For fittings and plumber work the cost should not exceed £5 to £6. That such a vessel should be of sufficient capacity to hold one, two, three, or even, in the case of small works, six days' distillate, is merely another way of endeavouring, by reducing the number of the supervisor's visits, to economise his time.

It is observed that the Government of the Colony, on the introduction of beam, scales, and weights into the distilleries, for the purpose of ascertaining the capacities of casks by weight—an excellent reform—was induced to pay two-thirds of the cost, perhaps it may be induced to contribute something towards the expense of providing a better system of accounting at the distilleries.

RETARDES OR SPURS.

By Section 59 of Spirit Ordinances, retailers of spirits are restricted in the number of bottles they may keep in their stocks. The shops are visited, apparently, monthly by the supervisors, who ascertain the number of bottles of brandy, whisky, rum, gin, &c., &c., in each shop, and a return of the census of bottles taken is duly sent to the Receiver-General on a form printed for the purpose. No stock is taken. The object in view in wasting the time of supervisors over this work it is difficult to find out, but it is, I think, a safe maxim to go by, that nothing should be done in this way to impress licence holders with an idea of the ridiculous. They are usually shrewd business men, who soon discern the value of a check visit.

To give a clearer impression of the system referred to it may be desirable to give a copy of the form with one or two examples of this work, taken from the diary of the supervisor of North Naparima Ward Union.

"TRANSCRIPT of my JOURNAL as SUPERVISOR of the DISTRICT comprised in NORTH NAPARIMA WARD UNION, from the 1st to the 28th of February, 1901."

Date.	Name of Spirit Shop or Distillery where stock is taken.	Where obtained.	Ward.	Remarks.
February 18	Ganga	St. John's	N. Naparima	1 punchbowl, 34. No. 1 c. c., none. No. 2 c. c., 14. Rum, B 5. Brandy, c. c., B 3. Brandy, c. c., B 4. Brandy, c. c., B 32. Gin, c. c., F 14.
February 13	Hansing	Victoria	East Ward ...	One gallon in demijohn. Cask No. 1, 24 inches. 3 bottles brandy. 2 bottles whisky. 1 flask gin.
February 7	Rampersad	Elven Venia ...	West Ward ...	Punchbowl, 13 inches. Cask No. 1, 74 inches. Cask No. 2, 64 inches. 3 bottles brandy. 17 flasks brandy. 29 qr.: F brandy. 10 half qr.: F brandy. 38 bottles whisky. 6 bottles Old Tom. 4 flasks gin.

And so on for 26 similar stocks taken in the supervisor's district. No distillery stock figures in the list although the distillery is the largest in the Colony.

The transcript from which the above examples have been culled was, as shown on the "Minute paper" by which it is fronted, sent to the head of the Excise Department on 28th February, 1901, but it shows no evidence that it was examined or looked at. It would be well, I think, for the Chief Supervisor to report to the Colony Government on this feature, so as to relieve supervisors for more useful work.

SEMI-RENTAVERS' LICENCES.

I was somewhat struck by the practice of charging the same annual rate of licence (£200) for all classes of such houses in Port of Spain. It hardly seems fair to charge the least important and the most important at one rate of licence. I have dealt with this subject under the British Guiana section.

MANUFACTURE OF COMPOUNDS.

It may be interesting to mention that compounds are manufactured from duty free spirits. For instance, the proprietors of Angostura Bitters, who have very large manufacturing premises in Port of Spain, use duty free spirits. They are said to work in Bond, but as in British Guiana, so in Port of Spain, the only revenue interference consists of a quarterly stock. In the circumstances a very delicate and difficult account is taken so as to arrive at accurate results.

BEER BREWING.

This industry is carried on in Port of Spain, where there is one brewery. The great heat is a source of difficulty and expense for refrigerating apparatus. The beer produced is not unpalatable, but the palate taste is singularly mild, not to say insipid. Appears as though a mixture of Guinness' would improve its flavour. There are certain allowances made for spillage and breakages in bottling; and it is understood that a Customs' allowance is made for breakages in the case of beer imported in bottle.

The loss in bottling in this country is stated by some of the largest bottlers to be from two to three per cent.

In this country there is no fixed allowance on import of bottled beer, for breakages. Whatever loss occurs the Customs allow for there and then, at time of import, that is if a claim is made.

STAFF.

It does not appear to me that the supervisors who survey these distilleries are well fitted for the purpose. Men with, in some cases, an annual income of, say, £550, plus some other emolument with important other duties to perform, such as are connected with

Park rangers,
Sanitation,
Pauper relief,
Burial grounds,
Pastures,
Crown lands,
Post Office Savings Bank,
Water Works,
Justice of the Peace,
Stipendiary Justice for his own ward,
Chief Executive Officer for his district,
Issuer of licences, &c., &c.,

and required to remain two days a week in residence for banking business, are not, in my opinion, the class of men to take to the work of a supervisor, say, in the largest distillery in the Colony. It is to be feared that a subordinate, of which these men appear to have a plethora, may be enlisted, shall I say frequently, to represent his principal. There men undoubtedly consider their Excise work as secondary to their other duties. It appears that one warden refused to perform his distillery work, which is now done from the Port of Spain, and is well done by an officer who has to attend to three distilleries.

There appears no organised effort to train men who must eventually succeed to the charge of important distilleries. The Excise warehouse should be the nursery for training, and there should be some understanding that men who pass through the Excise warehouse should be able to look for promotion and pecuniary advancement both in the Receiver-General's department, and probably also in that of the Auditor-General's, an office that would be all the better for a sprinkling of men possessed of some experience, of a practical kind, of excise accounts. Such a course of training, added to the technical instruction which the Chief Supervisor of Excise in Port of Spain is capable of giving, should prepare these men all round for the important duties that await them. Not a large number, it is true, is required, but at present the stamp of man needed, who has been trained in the warehouse as a locker is to be found in the medical service and in the Post Office, anywhere apparently but in the line of promotion to the position of warden or supervisor of distilleries.

The Chief Supervisor of Excise has been only a comparatively short period in the Colony. His work in connection with the new licence ordinance and the preparation of a multitude of forms, as well as the conduct of cases in Court, with other office duties, has seriously interfered with his duties as check officer. He should, in my opinion, have full control of the ordinary duties required of wardens in their capacities of warden and supervisor. The only control at present comes, it is understood, in the shape of an occasional visit, either of the Auditor-General himself or of some one from his office. The Auditor-General appears to think that legacy duty is evaded. How are licence duties attended to? The chief supervisor to be useful should have effective control of the wardens in relation to the concrete duties of assessment and collection including legacy duty, and be able to move about freely as a check officer should do. But there is no use in sending a capable man to a Colony if his judgment is to be unduly fettered or his intentions frustrated by an environment of inertia, founded on a "let well alone" policy. I make no claim to heroics in reform, but to such freedom only as shall conserve his usefulness.

At present there is no system of registering licences granted by the warden. If the supervising Officer wishes to know the state of the case, or to see if a certain person has paid his licence, he must wade through counterfoils or go to the person concerned and ask for his licence. Some of the counterfoils may be, at the time of

his visit, with the Auditor-General in Port of Spain. This is sheer waste of a check officer's time. And what of new licences! There should be a licence register. Some description of each book is kept at present, but I tried in vain to obtain any useful information on the point from the warden in San Fernando, he was so confused and seemed unfit at the time to explain anything that I gave the matter up in despair.

EXPORT ALLOWANCE.

Excise Restrictions.—Estimated Value.

There are no restrictions in the fermenting room. Spirits pass through close pipes properly secured and through locked safes, into locked vats, in a locked store, the key of which remains with the distiller. The vats inside only, have revenue locks. These securities may be regarded merely as safeguards adopted in the owner's interests. They are so considered by more than one of those men who are closely identified with the manufacture of sugar. Take for instance Mr. Greig, who is Attorney or Manager of several important estates, and gives it as his opinion, to quote his own words, as to the restrictions imposed on rum distilleries by Ordinance No. 19, 1892, "I consider (the restrictions) are such as would be necessary to insure proper and economical working, whether rum was dutiable or not, and if not imposed by Ordinance would be carried out by the distiller himself."

On the other hand a claim has been made by certain managers, supported by officials of the Government in Port of Spain, for an allowance which is returned as amounting to from 2d. to 3½d. a proof gallon.

In a joint report of 6th July, 1899, signed by the late Receiver-General and by the Collector of Customs, it is said the Excise restrictions probably amount to 2d. per gallon. This report was accompanied by a letter, dated 4th July, 1899, from a Mr. L. Bert, and by another from Mr. William Greig, just referred to, dated 30th June. The former values the cost to distillers of excise restrictions at 3½d. per gallon, the latter at something less, depending on the number of gallons to a puncheon, but it will appear further on that both Mr. Bert and Mr. Greig had written under a misapprehension of the precise effect of the Rum Ordinance.

In the Collector of Customs' report, dated 21st June, 1899, there occurred the following concluding passage:—

"While we are not prepared without closer enquiry to commit ourselves to a precise estimate of the cost to local distillers of excise restrictions, Professor Carmody and myself agree that *it is beyond question markedly higher than the corresponding amount *is* in Great Britain.*" (The italics are mine.)

The portion italicised struck me as so very extraordinary and so contrary to the actual facts of the case that at my request the Colonial Secretary arranged for a conference with these gentlemen. The conference took place, and I explained:—

1st.—The basis for the estimation of the allowance and surtax in Great Britain and Ireland, pointing out as clearly as I could do in the time at my disposal, how essentially the case of this country differed from that of the Colony of Trinidad. I endeavoured to show that all the important restrictions valued in connection with this matter, in this country, were more conspicuous by their absence in the Colony than they were by their presence.

2nd.—I pointed out to these gentlemen that a very important part of the Ordinance for the Colony, remained at that date a dead letter, that had not been enforced since 1892, when the Ordinance was passed, and I demurred to their contention that sections or clauses held in abeyance should be considered for allowance or surtax before these provisions were applied in the distillery, and I asked them to furnish me with the data on which their estimate of 2d. a gallon for the Colony was founded. I could not say that these gentlemen were satisfied. They scarcely discussed the subject seriously at our conference, but the Collector of Customs in leaving simply said I am of the same opinion still, or words importing that meaning. I came to the conclusion, as the result of the interview, that the reports referred to from these gentlemen had been written honestly enough, but under a total misapprehension of the system in this country of which they appeared to know little if anything, and I made up my mind to let the matter drop without further notice.

I left Trinidad for Grenada on the 30th May, where I received a letter from the Trinidad Colonial Secretary, of date 30th of May, enclosing a document, dated 28th of May, of which the following is a copy.

REPORT by the Collector of Customs and the Government Analyst.

HONOURABLE COLONIAL SECRETARY,

May 28, 1902.

On the 23rd instant, at his request, conveyed through you, we met Mr. Steele in conference. The subject discussed was the report of the Collector of Customs of June 21st, 1899, and the report of a Committee, dated July 6th, 1899 (M.P. 2030/99), on excise restrictions upon the rum industry. With the preparation of both of these documents Professor Carmody was intimately associated.

2. Mr. Steele and ourselves disagreed so materially that we consider it necessary to ask that this communication be transmitted to him, with a request that it be placed on record.

3. We need not touch on minor differences, or say more generally of the reports in question than that with the exception of an inaccuracy in paragraph 4, sub-section (c), second sentence, of the earlier, due to its hurried preparation and corrected in the late one, we see no reason for altering or modifying any of the views then expressed.

4. Our main differences with Mr. Steele were (1) as regards local excise law and local practice, (2) and loss by evaporation.

The first rested on the fact that while the reports referred to dealt with restrictions imposed by law, Mr. Steele refused to recognise any which were not enforced in practice. This is a highly important distinction, which we do not consider Mr. Steele justified in making.

5. The necessity for closer supervision of distillation has long been seen. It was strongly felt in 1892, when Mr. Hamilton, the then Receiver-General, prepared the existing law, and Professor Carmody, who had a share in framing it, is aware that it was Mr. Hamilton's intention to have it rigidly enforced. A Committee on Excise matters, which sat two years ago, recognising the impossibility of carrying out the law satisfactorily without the aid of a properly trained officer of Excise, recommended the appointment of a highly paid officer from England. We were on that Committee, and the idea uppermost in our minds, and, we believe, in those of our colleagues, was the need for better protecting the rum revenue. But for that consideration we do not think that the recommendation which has since been adopted would have been warranted.

6. Mr. Steele will, we believe, agree with us, that the supervision of distillation is lax, and that more rigid application of the law is very desirable. Therefore, to treat admitted and temporary laxity as normal is not, we submit, reasonable. The practice on which Mr. Steele relies is temporary, the law is permanent.

7. The other point is loss by evaporation, referred to in paragraph 4 of the report of July 6th, 1899. This Mr. Steele refused to recognise, on the ground that it occurred before the official account was taken. The objection would be just were the question one of duty, but we submit that the fact of the loss by the distiller of his rum is not altered by its non-appearance in official records.

P. CARMODY,

Government Analyst.

R. H. MCCARTHY,

Collector of Customs.

I wrote in reply to their request to have this report placed on record, that I should willingly comply. I further said that as the subject would be taken up in my report to the Colonial Office it was desirable to restate the case now so as to avoid misunderstanding in the future. I did suggest in the event of my interpretation of their views proving inaccurate that they should furnish me with the correct version, otherwise that a further reply was unnecessary.

I said, quoting from notes of my letter to the Colonial Secretary: In No. 4 of their paper the writers appear to contend that as the Ordinance, No. 14, of 1892, contains certain provisions, that bear on the manufacture of rum in the Colony, which, however, have not been brought into force, but have been allowed to remain in abeyance, ever since the Ordinance was passed, should, in 1899, have been considered for surtax purposes as if they were effective restrictions on rum manufacture. In other words, I take their claim to be that powers taken in the Ordinance, that were never acted on, and that even now remain a dead letter, should have been considered for surtax in 1899, when the reports standing in the blue book were made.

I was unable to accept the interpretation of my views as to evaporation in the case in point, and so far as the mere question of such loss without regard to surtax is concerned, we had been in agreement.

Not satisfied with my interpretation of No. 4 in their report of the 28th May, I am now furnished with a further paper, dated 24th June, which the Colonial Secretary requests should be regarded as supplementary to the first report.

HONOURABLE COLONIAL SECRETARY,

We cannot admit the correctness of Mr. Steele's interpretation of our position; indeed, there is no evidence in his letter that he sees our point at all. Mr. Steele said that some of the restrictions imposed by law were not enforced in practice, and that therefore he could not take account of them. We, on the other hand, stated that the Excise Ordinance was no obsolete law, but one passed only ten years ago, with the specific object of increasing restrictions; that the enforcement had been unavoidably delayed by want of the proper machinery, that at the request of the Government three years ago for expert advice on the working of the Department, and their subsequent appointment of a trained officer from England indicated their intentions, and that consequently the legal restrictions, which were reasonable, and copied from the British law and practice, would in all probability soon be enforced.

2. We argued, therefore, that these restrictions should for the purpose of this enquiry be regarded as effective. Mr. Steele ignores the element of probability. We submit that he is not justified in doing so, and that his necessarily limited observations on a transient stage of our excise system would be an erroneous basis for a permanent settlement.

3. Mr. Steele's disagreement, qualified though it be, with paragraphs 5 and 6 of our memorandum of May 28th, surprises us. Paragraph 5 deals altogether with facts which have long been within our knowledge and are indisputable, and they can be easily verified by reference to local official records. The gist of paragraph 6 is that a more rigid application of the law is desirable. We understand Mr. Steele to express that opinion even more strongly. At all events when the statement was originally made in 1899 a state of things existed here which would not be tolerated for a day in Great Britain. We may quote Mr. Pratt, the expert adviser already referred to :—

"To a certain stage the security of the revenue is entirely dependent upon the honesty and integrity of the proprietors and the irresponsible employees" (paragraph 6).

4. The last sentence of Mr. Steele's letter shows that there is no real difference between us respecting evaporation. Obviously, of the loss which occurs there is not, as he says, any official evidence. We also agree that no accurate estimate can be formed of this amount. However, that loss is undoubted, and the Imperial surtax itself is based on estimates necessarily rough.

5. Mr. Steele's statement that nearly all (British) distilleries ceased during the summer indicates the importance of considerations of temperature, which was the point originally urged. We may add that they are of even more importance as regards rum, which is made at a much higher strength than whisky, and therefore evaporates more rapidly. That certain British distillers did, for a reason stated, work in the early morning, is within the personal knowledge of one of us.

6. One or two other sources of difference may be passinglly alluded to. One was with respect to the obligation to warehouse spirits in the towns. Mr. Steele, who in the other directions relied upon practice whatever might be the law, here laid stress on the fact that whatever might be the practice there was no legal compulsion.

Mr. Pratt says (paragraph 16) :—

"It is not advisable to allow payment of duty . . . at distilleries . . .
It is preferable to have all the spirits sent . . . to a bonded warehouse."

Again (paragraph 12) :—

"The distillers are practically compelled to warehouse their spirits in Port of Spain . . . pending exportation."

and he therefore proposes that no rent be charged. In our opinion distillers are "practically compelled" to so warehouse all spirits, and pay a fire insurance premium of 26s. to 31s. per cent., for these spirits, as against the 3s. 6d. which is, we understand, the average rate in Great Britain. Again, let us quote Mr. Pratt (paragraph 13):—

"The annual income from warehouse rents more than cover the Excise Staff,"

a single fact indicating a serious burden on the producer.

7. Mr. Steele dwelt on the limitation of the British allowance to restrictions imposed during the brewing period, and the fact that corresponding restrictions were at present in abeyance here. Reference to the reports of June and July, 1890, will clearly show the heads under which we considered that a loss of two pence a gallon was incurred, and that restrictions during the brewing period were not included. Two pence is the estimated cost of restrictions on British distillers, and in noticing this ground of comparison the remainder appears important, that it is not the British compensating allowance of two pence which is in question, but the import surtax, which was in 1881 raised from two to four pence, while that on foreign spirits was at the same time reduced from five pence to four. It may be of value to recall the official explanation of that change, which is to be found in Parliamentary Blue Book (C. 8706), page 168. The author of the Blue Book, Mr. Pittar, one of the Commissioners of Customs, than whom there could be no higher authority on the subject, thus states the object of "putting an end to the preferential fiscal treatment which it (rum) had enjoyed for a century and a half." He says:—

"The reason appears to be that it would be convenient to be able to reckon the duties on all foreign and Colonial spirits at a single rate."

8. When submitting to His Excellency our memorandum of May 28th, we intended only to state our adherence to the opinions expressed in 1890, and to briefly note the chief sources of disagreement with Mr. Steele. Unfortunately, it appears from Mr. Steele's letter that we have not succeeded in accurately conveying our meaning to him, and we have, therefore, thought it necessary to enter somewhat fully into the contested points.

R. H. MCCARTHY,

Collector of Customs.

P. CARMODY,

Government Analyst.

June 24, 1902.

Dealing first with the Collector of Customs' report of 21st June, 1890. The joint report of 6th July, 1890 (referred to in that of 28th May, 1902) is made the vehicle of a correction in paragraph 4, subsection C, 2nd sentence, but it does not appear that consequential corrections were made. For instance, Mr. Greig's estimate of 30th June, 1890, was based on this error, corrected by the Committee in their report, and disappears with that correction. But his figures are quoted in the report of the Committee dated 6th July, 1890, without note or comment. The writers now say (23th May, 1902) having made this correction, that they see no reason for altering or modifying any of the views then expressed.

In paragraph 3 of that report (21st June) it is said that "every obligation imposed by the latter (meaning the British Act) is imposed by ours." The writer cannot have compared the British Act with the Ordinance, otherwise he would not have made a statement so wide of the actual facts.

In paragraph 3, at 5th line, it is stated "That these obligations are onerous is proved by the completeness with which the attendant expenditure has wiped out small distilleries the same tendency has been observed in Great Britain, but the result has not been so complete." The statement that distilleries in Great Britain show a tendency to decrease in number is not quite borne out by the facts of the case. In 1853 when locked worm ends were enforced, there were 195 distilleries. In 1901 there were 190. And if the official information supplied to me in Port of Spain is correct there were in Trinidad in 1892, when the Ordinance was passed, 5 distilleries. There are now 4. In Tobago two of the smallest distilleries in the West Indies appear to live and thrive under the new régime.

Same report 4 "a" and "b" "Every distillery at home has an Excise Officer on the spot; here, one Port of Spain Officer, with casual assistance, does the whole of the

work, and frequent delay is thus rendered unavoidable. Illustrations can, I am assured, be supplied by distillers." This is a point as to which I made particular enquiries, and I was assured frankly and without apparent reserve, that no complaint could be made of want of punctual attendance on the part of the officers. Indeed, one proprietor expressed his satisfaction by repeating it. I was much pleased to find this testimony to the officers' punctuality. This matter was brought up at the conference, and thinking I might not have heard the whole truth at the estates I invited these gentlemen to try and obtain evidence of their contentment. This they declined to do. It is assumed, however, that proper arrangements could, and should, have been made for the attendance of supervisors so as to obviate inconvenience to the distillers. At all events the writer of the Instructions to supervisors had no doubt on the subject—see paragraph 4, 3rd line, quoting the sentence "should the distiller suffer loss by the supervisor or officer of Excise not attending at the distillery at the proper time, *as previously agreed upon*, the supervisor will be held responsible for the loss." (The italics are mine.)

Same report, paragraph 4c, "In Great Britain every distiller has his own bonded warehouse adjacent to his factory, so that the cost of storage and distribution is minimised. In the warehouses (in this Colony) there is a rent charge of 15 pence per puncheon per month," &c., &c. It is contended in reference to this point, that it would not pay to erect warehouses on the estates, as the distilling season is comparatively short. But the same is true of the greater number of distilleries in Great Britain. They work only for 3, 4 and 5 months each year, and if the distillers have warehouses at the factory it must not be supposed that these warehouses cost nothing.

Same report, 4d, "Section 9 forbids the erection of a distillery in Port of Spain or in San Fernando, where the supply of labour, water, and other materials, and the facilities for distribution would be better." It is singular that such a prohibition should exist. The Urine estate, the largest on the Island, comes into close proximity to the town of San Fernando. Its 60 miles of railway has its starting point in the town. The factory itself might have been built close to the town instead of 5 miles distant. It is clear, therefore, that neither the Company nor yet its very able Manager has discovered the advantages referred to. Possibly, in such a large property, embracing as it does 70 smaller estates, the manager had an eye to the convenience of placing the factory near the centre instead of at an extreme point like San Fernando.

Same report, 4e, "In Great Britain distillers may place spirits in 9 gallon casks. Here, &c., &c., it is 24. Any person having more than 5 gallons of spirits in his possession is subject to Excise Supervision." No complaint reached me as to the limit of 24. If it be objected to, the legislature can deal with it, and in my opinion it is needlessly high, probably 20 would be better. As to Excise surveillance in the case of 5 gallons. If it be the fact that any person in possession of a permit or other document covering the spirit is subjected to such an ordeal, then the Government should, for its own credit, repeal so obnoxious a provision. But such a provision is not that I can see remotely connected with Excise restrictions to be considered for export allowance.

Same report, 4g, "The machinery imported for the purpose of complying with the Excise Law is, of course, much more expensive here than it is in Great Britain." It is not quite clear what is referred to. If it be the few fastenings, cocks, locks, spirit safes, required they cannot come to much in any case. I am inclined to think that machinery from America is cheaper, perhaps not better, but I can say that what I have seen in this Colony as Excise requirements are very far from being so costly as the corresponding articles at home.

Same report, No. 6, with this statement it is unnecessary to deal here as it is fully dealt with under Jamaica, and the difference shown in parallel columns. (See page 15.) The statement referred to only requires consideration in respect of locked safes and locked rats, &c., to fit Trinidad.

The joint report, dated 6th July, 1899, of the Committee appointed to consider the question calls for no notice. It is signed by only two of the three members. One curious feature of the report may be pointed out. The Committee say that they "fully endorse the statement made by the (late) Receiver-General in his report of the 26th April, 1899, to the effect that "no complaint is or can be made with regard to the restrictions imposed on the distillation of rum." At the same time that they amputate the tail of that sentence, which runs thus "and the additions to the cost of production in consequence of restrictions or supervision are practically nil."

I come now to deal with the report and supplement bearing the respective dates of 26th May, and 24th June last.

I have put a few of the "minor differences," so called, on record, in dealing with the report of the Collector of Customs, dated 21st June, 1899. I purpose now dealing with paragraph 4 of this report, and that part of the supplement bearing on it, and I regret to have to say that the report and supplement fail to convince me. They say "Mr. Steele refused to recognise any (meaning restrictions) which were not enforced in practice." So he did; his mission was to ascertain the value of restrictions in actual application to the distillers' operations, not any embalmed and hung up in an Ordinance without being applied; why, if such a construction is to be accepted, each of the Colonies has only to adopt the British spirit Act, *verbatim et literatim*, to obtain access to an allowance on export, if they are to be at liberty to leave unapplied whatever suits their inclination or convenience. In such circumstances, is it too much to say, that any such allowance, if it had been granted in 1892, or in 1899 on the reports referred to, would have been enjoyed under false pretences. But the writers tell me in effect, that I do not give due consideration to the fact that things have been, and are, in a very bad state; that the provisions held in abeyance were intended to be enforced, and that things were only allowed to drift until the arrival of the Expert, who was expected to right the wrong. Will these gentlemen affirm that on the arrival of the Expert he was in a position of absolute freedom to apply the Ordinance regulations to the several distilleries! I am also called as a witness to the iniquity of the existing Revenue arrangement, &c., &c., but when I turn to the joint report of 6th July, 1899, I find the following words in paragraph 4, line 4. "As a matter of fact the utmost latitude consistent with the safety of the Revenue is allowed by his (the Receiver-General's department," (the italics are mine). What am I to think! Does this show that in 1899, when the question of employing an Expert was under consideration, these gentlemen viewed with concern the safety of the revenue from spirit duty!

But these two papers, if they really represent the actual state of the case, describe what appears like an appalling state of matters. The head of the Excise department occupying a very important post, to which a salary of £800 a year is attached, is by implication represented, practically, as reigning but not governing.

This official must, indeed, be in a bad way if he cannot assume the initiative, for example, in requiring certain books to be kept and certain returns to be rendered by the distillers, and call on his supervisors to see that his request is attended to. He could surely have insisted on being furnished by the supervisors with what is required in paragraph 6 of the instructions, i.e., "Copies of all measurements of vats, calculations, &c., &c., which they are enjoined to furnish the Receiver-General. That is at least a requirement that need not wait the arrival of an expert from England. It cannot be possible that the head of an Excise department in an important Island like Trinidad should be in so helpless a plight as he is by implication represented in these reports to have been. I refuse to believe it. If I could believe it I should say he was unfit for such a position. But all that is said of the unsatisfactory condition of things in general, because certain things in particular have been left undone, does not touch in the least degree my contention that it is time enough to claim allowance or surtax, when the provisions of the law now in abeyance have been applied. These restrictions must be solid fact, not fiction. The law, it is admitted, is permanent, but Excise restrictions do not depend on permanency of law in the abstract, but on its concrete application.

Paragraph 3, supplementary.—I sympathise with these gentlemen in their hunt for authorities.

The statement served up for my consumption needs some elucidation; where does the "certain stage" begin and end! If I am to take it that as in Trinidad, the spirit passes through secure pipes, a locked safe, and then through secure pipes falling into a locked vat, in which it should not be "touched, tasted, or handled," except in presence of the supervisor; where does the "certain stage" come in! Yes, I failed to remember that in the largest distillery in the Colony, where the key of the store is kept by the distiller, all these arrangements as to security have been practically nullified by a stroke of the pen of the head of the Excise department, who has thrown open the tops of vats that may contain 20,000 gallons whilst the discharge cocks of the same vessels are required to be kept locked. This at least exhibits no feebleness in action.

Paragraph 5. Mr. Steele is not quite satisfied that the statement "that nearly all (British) distilleries ceased during the summer indicates the importance of considerations of temperature, &c." bears out the inference drawn from it. It indicates only somewhat commonplace necessities of the case.

(a.) Malting is a matter of great difficulty in summer. In presence of a stock of malt, distillation may be carried on through the summer—and is, as a fact, in certain cases.

(b.) For the prosaic reason that there is enough stock of spirits in hand in the warehouse without further addition to it.

(c.) Temperature was not considered in fixing the hours in spirit store, but the fact that spirits could not be removed from store into warehouse later than 3 p.m. was. As a fact, spirits are filled throughout the day in the cases in which distilleries do not cease working, unless for repairs. In speaking of rum as distilled at a higher strength than whisky, the writers appear to overlook the fact that about 90ds of the spirit made in Great Britain is of a much higher strength than rum.

Paragraph 6. The statement that "Mr. Steele who, in the other directions relied upon practice whatever might be the law, here laid stress on the fact that whatever might be the practice there was no legal compulsion," &c., must be noticed. In bringing a charge of inconsistency the writers should have been somewhat more specific and less general in their allegations. The "other directions" refer, no doubt, to my refusal to consider for surtax or allowance purposes, restrictions which had no existence in practice, but which it was quite in the power of the Revenue authorities in the Port of Spain to apply if they were so inclined.

A very different case is that now under consideration, and one in which the initiative rests with the distiller, and with him alone. It is not a case for this and that opinion. It is quite simple.

A certain claim is made to consideration in connection with what is called the necessity to remove spirits to Excise warehouse in San Fernando, for example. This position was abandoned in 1899 (as noticed on page 399) on a more careful perusal of the Ordinance for the Colony, but, strange to say, when I met Mr. Greig this year, or three years after the discovery had been made in Port of Spain, I was surprised to find that he was still labouring under the erroneous impression that such removals were compulsory. His letter, which shows that his calculations were based wholly on this fallacy, was accepted by the Committee and, as stated already, was sent in without note or comment, as a contribution to the solution of the question under consideration, and it is so printed in the blue book.

Mr. Greig, to quote from his letter, says: "If the rum had been stored on the estates, as sugar is, the cost would be nominal, as the existing staff (meaning distillery staff) would be sufficient for the supervision, and the only outlay would be the cost of stores, the interest on which would be the cost of warehousing."

There is, as already stated, nothing to prevent the erection, adaptation, and use of a warehouse on a plantation. If the fact is known to the distilling industry, as it ought to be, what claim is there to consideration for compensation for acts of a purely voluntary character undertaken by the distillers in removing their spirits to town warehouses when they can provide for them on the plantation? And in dealing with the two cases as to which I am charged with inconsistency, I can only say that in each I walked strictly on the lines of the Ordinance.

The difficulties attempted to be raised as to official attendances at such a warehouse, appear already to have been solved, as the supervisor now attends when requested to take account of spirits in course of being drawn from vat for removal. He would have no more attendance, but somewhat less under the new or suggested arrangement, but the meet answer may be found in a question, was not the point raised considered before the section found place in the Ordinance?

The idea of objecting to payment of duty at the distillery is somewhat strange. The spirit, when cleared on duty payment, is spirit which has been taken account of by the Revenue officer after it is drawn from a locked vat. The moment account is taken why should objection be made to its clearance? Do I understand that it should be brought, say, 5 miles to a warehouse to be looked at, and then brought back again to be delivered in the neighbourhood of the distillery?

Paragraph 7. "Mr. Steele dwelt on the limitation of the British allowance to restrictions imposed during the brewing period and the fact that corresponding restrictions were in abeyance here." The first part of the sentence shows that what I said was misunderstood, for although the British allowance is preponderantly due to restrictions in the fermenting room it is not wholly so. That I said that "corresponding restrictions were at present in abeyance here," I cannot admit. If by the word "corresponding" is meant the full complement of the British restrictions in the fermenting room—and it is difficult to see that its application in the connection

can have any other meaning—I made no such statement, and this statement could not have been made if the writers were to try to master the requirements of the British spirit statute, and those of the Trinidad ordinance.

A quotation is made from a Parliamentary blue book as to why the surtax of 2d. on rum was made 4d. in 1881. I regret to say that I differ from the accuracy of that quotation as representing the circumstances of the case, and my authority for differing will be found in Hansard in the speech made by the Chancellor of the Exchequer who proposed and carried the change in the House of Commons.

The perusal of these papers has served only to deepen the impression I had on coming away from the conference that the reports entered in the blue book had been written in all honesty but without a full knowledge of the subject dealt with. It is far from my wish to say anything unnecessarily to wound susceptibilities. It is, however, not unfair, I think, to ask what claim the writers have, as *practical men*, to speak with authority on distillery matters, especially in this country. The Collector of Customs never surveyed a distillery in this country or I suppose in the Colony, probably never was inside a distillery at least here. The Government Analyst was an assistant of Excise for a short time, and left the service before he had been more than initiated into the rudiments of practical work in this country or ceased to be an officiator. The apprentice period is scarcely one in which young men, in search of experience to fit them for a permanent charge, turn their attention to such difficult problems as surtax considerations. It is thus clear that the short-comings of these gentlemen are the result of want of experience.

The real elements of a surtax, such as the Excise restrictions that give claim to it in Great Britain, are practically absent. But the following figures may be considered in that relation :—

	£	s.	d.
(1) Interest at the rate of 6 per cent. on an expenditure of, say, £50 incurred in providing fastenings, cocks, and test cases	3	0	0
(2) Interest at same rate on, say, £50 incurred in increasing the security of spirit store so as to conform to the ordinance requirements	3	0	0
(3) Annual cost of renewals in cases 1 and 2, say	5	0	0
(4) Contingencies such as payment of duty on excess deficiencies, &c.	10	0	0
	£21	0	0

This for six distilleries on a five years' average production of rum amounting to 492,352 proof gallons, would represent an allowance of, say, 245, nearly one-fourth of a farthing per gallon.

GRENADA.

There are 131 sugar estates, and only 16 making rum. In 1892 there were 27 rum making estates.

DISTILLERY PLANT.

Common pot stills, capacity from 175 to 600 gallons, with the usual retorts, and, what is called a Blair Campbell and McLean still, or a modification of it, are in use, each producing from 50 to 100 gallons a day. The latter is provided with outside trays for water, a stream of which is constantly running into the top tray and falling from one to the other. Assuming the surrounding water to be kept reasonably cool, the arrangement has considerable rectifying power. Spirit safes are provided, and the spirit runs into square receivers made of concrete, of from 300 to 500 gallons capacity, one for rum, one for low-wines and another for very low-wines, as they are termed. Each receiver has a glass gauge and a manhole door.

In most cases, the fermenting vessels were provided with close lids for the exclusion of air, a condition not usually suitable to healthy fermentation.

SYSTEM OF MANUFACTURE AND ACCOUNT.

Wort is made from a mixture of molasses, dunder, and skinnings are used where they are produced, but sugar is seldom made in this Colony as it pays better, at present at least, when rum sells in the island at from 2s. 6d. to 3s. a gallon, to convert the sugar crop into rum. Indeed, the part of the island visited seems wholly unfit for growing cane, only about 10 tons of cane per acre is produced. Cocoa, coffee, &c., are the crops relied on. Slow fermentation, requiring from 10 to 12 days, is carried on, sometimes in large casks tilted on end, sometimes in comparatively fair sized fermenting vessels, erected for the purpose, and I also saw concrete squares used for that purpose. The wort is set up at from 10 to 13 Beaumé (71° to 92° Bates) and there was not wanting evidence of incomplete fermentation.

In some cases the fermenting rooms seen were very unclean, presenting an appearance not at all favourable to healthy fermentation.

The spirit is run into the concrete receiver already referred to. The keys of the spirit safe and of the receivers are in the possession of the revenue officer, who attends to permit the drawing off of spirits into carrying casks for removal to a public warehouse. As these receivers are practically underground, removal of spirit takes place through the manhole door and by means of a hand pump.

In scarcely any instance seen, is there a fixed pump for removal to retort of the low-wines and very-low-wines, and, to save the distiller only a few pounds in putting up proper pumping facilities, the officer must present himself for each removal of low-wines, &c., in addition to being present to draw off rum.

In some places, these concrete receivers stand inside a locked rum store, the key of which remains with the distiller. At other times, they are practically receiver and what there is for rum store. In such a case they stand in an open shed. The last Ordinance requires a store to be provided for distilleries erected since it was passed, but the only one erected since, is allowed, under indulgence, to dispense with one, on condition that the spirit drawn off is removed, without delay, to the public warehouse in town.

A concrete spent lees tank has been erected outside the distillery, so as to allow the lees from retort to be discharged without the officer's presence. But singularly enough, this spent lees receiver itself cannot be discharged without requiring the attendance of an officer. The tank should have been provided with an outflow to a common drain, if practicable, but in any case, if the pipe from the retort discharged itself at the bottom of a body of liquor in the spent lees tank, there could be no risk from an outflow which would dispense with the attendance of an officer each time the vessel is emptied.

The time of officers is simply frittered away in attending to removals of low-wines, when if proper pumps had been provided, this attendance would be unnecessary, to the benefit alike of the distillers, who would have more freedom without any greater risk to the revenue, and the officer, whose time might be applied otherwise than in such attendances, and in the preparation of a huge return showing each removal of low-wines and very-low-wines.

The diagonal rod is in use for finding capacities of casks. The casks are callipered in warehouse and differences, ranging from half a gallon to three or four gallons in a hoghead, discovered, showing the incorrectness of the diagonal rod ascertainment.

EXCISE REGULATIONS AFFECTING DISTILLERIES AND OTHER SOURCES OF EXCISE REVENUE.

In the fermenting room, there are no Excise restrictions, the retorts are secured and the spirit runs through close pipes, a locked safe, and falls into locked receivers.

The distiller is required to keep the usual stock book (see Appendix E.), in which he is to enter the quantity of rum produced daily from still, and to show quantities delivered for removal to warehouse or for other purposes. This account, which is obtained from inspection of the gauge glasses, on the rum receiver, is subject to the consideration that the gauge glasses record quantities so inaccurately that any attempt to strike a balance between the distiller's account and the account of spirits drawn off has been abandoned. The stock book account and the quarterly return from it are, therefore, practically useless.

The quarterly return is declared to before a Justice of the Peace, notwithstanding inaccurate gauge glasses. (See Appendix F.)

There is, therefore, no real check of any kind on the quantity delivered into rum receiver. No account is taken of wort or wash. No notice of gravities, and the quantity and gravity of the molasses used, is unknown to the revenue. It simply amounts to this, that the revenue officer and the distiller are masters of the situation. There is no stock as a check on receipts and deliveries. And the revenue officer is a policeman on small pay, supervised by a Sergeant of Police, who cannot be expected to know much of distillery work. It does seem extraordinary, in a Colony in which the produce from Excise of all kinds is nearly £27,000 a year out of a total revenue of, say, £71,000, that a more rational arrangement cannot be devised. My impression is that the police should have nothing to do with this work, and I am satisfied, for reasons given elsewhere, that such employment is a grave mistake.

The use of a dipping rod in each vessel properly secured, with a table showing the area in gallons for every tenth of an inch, would give correct results with practically no additional trouble, and if proper weighing machines be provided, the contents of casks could then be accurately ascertained.

Rum is given duty free in this Colony to the distiller for domestic use. In one case a distiller applied for permission to remove an accumulated quantity into a spirit retailer's stock. A permit was granted. This shows that rum given is not applied to domestic use, and the supply duty free should, I suggest, be discontinued.

During the distillation of rum, the distiller has no access to the article to taste for flavour, &c. And if he wishes to have access during distillation, or re-distillation, he is required to pay 5s. a day for an officer's attendance. This might be easily avoided by the provision of a proper sampler, in connection with the spirit safe, which should cost very little.

A still licence is conditioned on the working capacity of the still, which may seem an equitable way of levying the licence duty. In this case, £1 for each 25 gallons of working capacity. It is almost needless to say that the working capacity of a still (unless by this is meant the point to which it can with safety be filled so as not to boil over) depends on its construction, whether flat and exposing a larger surface to the fire or other heating agent or otherwise, &c., &c. These small stills carry licences varying from £12 to as much as £20. At the same time, it is not improbable that the lesser licence may carry the larger produce.

All locks in use at distilleries are labelled, as in this country, and the labels are affixed to their counterparts for subsequent examination. Each label shows the occasion for which it was used—a check on frequency of opening vessels—and any tampering with the lock can be easily seen. The use of locks, provided with a box for a label, for all important places such as safes and spirit receivers, should be compulsory in all the islands, where the distiller is without access to the distillate.

The Colonial Secretary wished to have some guidance as to the fixing of some maximum allowance for waste in spirit stores and warehouses in Grenada—the waste found to occur between the quantity entered in distiller's stock book, by way of debit, and the quantities drawn off from spirit receiver from time to time, as the credit side of the account. These deficiencies have a common origin in many respects such as spillage, absorption, evaporation, &c., but the two last causes should increase in the ratio of increased temperature and must exceed somewhat in tropical climates what they are in this country. Whilst, therefore, I can specify requirements in this country as some index for guidance it will be necessary to adapt them to local conditions in the West Indies.

The wastage or deficiencies in spirit store in this country do not exceed an average of 1 per cent. per annum. Any loss not exceeding $1\frac{1}{4}$ per cent. is allowed. Exceeding this limit, up to 3 per cent., is charged with duty. If beyond 3 per cent., no allowance whatever, free of duty, for loss in store is made.

In Excise warehouse in this country, the following scale of allowance is provided to guide the officer. Any loss beyond these rates is charged with duty and brought under review of the Chief Inspector, by means of a monthly return.

DEFICIENCIES IN WAREHOUSE.

Wet Goods.

No allowance is to be made on wines or spirits in bottle; but deficiencies on wines from and spirits in cask, arising from natural causes, may be allowed by the officers to natural the extent of the following scales.

From
natural
causes.

Wine in Cask.

Allowance. In casks of 20 gallons content and upwards, one gallon per cask, and in casks of less than 20 gallons content, half a gallon per cask, for each year, or part of a year; duty being charged, in the latter case, to the half gallon.

Spirits.

British and Foreign Spirits in Cask.

	For Periods not exceeding	In Casks of			
		60 gallons content and upwards.		Under 60 gallons content.	
		Ordinary.	Special.	Ordinary.	Special.
1 month	...	Per cent. 1	Per cent. 0½	Per cent. 1	Per cent. 1
2 months	...	2	1	2	2
6 "	...	3	2	4	3
12 "	...	4	3	5	4
2 years	...	6	4	7	5
3 "	...	8	5	9	6
4 "	...	10	6	11	7
5 "	...	12	7	13	8

EXPORT ALLOWANCE.

Excise Restrictions, Estimated Value.

There are no Excise restrictions in fermenting room. No interference until the stage of secure pipes and fastenings, spirit safe, and locked receivers, is reached. The safes were provided at Government expense. So were the fastenings and locks, and Government paid one-half the cost of providing the concrete receivers. The distillery stock book entries daily would occupy a few minutes only, and in addition there is only a quarterly return which occupies a short time but may be discontinued as, in the circumstances described, it does not give reliable results.

The actual cost to the distiller is about £30 for his share of the concrete receivers. The interest on this at 6 per cent. would amount to £1 16s. Annual cost of renewals, say, £2—contingencies, say, £2—in all £5 16s., say, £6. This, for 16 distilleries on a five years' average production of rum, amounting to 47,944 proof gallons, represents an allowance of 1·9 farthing, or nearly one-half penny a gallon.

Taking a 5 years' average, ended 1901, the annual export of rum from this Colony was only 96 proof gallons.

ST. VINCENT.

There are now only four estates in the Colony making rum, out of a total of forty-three sugar estates, a reduction of eight in rum distilleries since 1892.

DISTILLERY PLANT.

The stills in use generally are small, from 350 to 400 gallons capacity. They consist of the common pot still, and each is connected with two retorts, as described in case of Jamaica. The spirit falls from the worm end into a spirit safe, provided at the expense of the Government, and runs into a copper receiver or measure standing near the safe and capable of holding 50 gallons. Similar copper receivers are also provided to receive the impure spirits, one for high-wines and one for low-wines. Each receiver has a glass gauge and index to show the quantity it contains. Close to the rum receiver is a fixed pump by means of which the pure spirit is pumped

up into the spirit receiver. A separate pump is used to remove the high-wines and low-wines into their respective retorts. The pumps are locked to prevent access to the spirits, but they can be worked at pleasure by the distiller.

The spirit receiver is made of concrete and has a glass gauge and an index to show how much it contains. This vessel stands sometimes in the spirit store, where a store is provided, but often it is found outside.

The pumps referred to are very liable to go out of order. The stuffing soon wears out and spirit runs from the opening in which the piston-rod plays. This opening is oval so as to allow for the oscillations of the piston at each stroke. The Chief of Police first directed my attention to this defect. At one distillery the leakage was so great that a wooden shute had to be provided to direct the run from the opening into an open vessel to prevent loss of spirit. In such a case provision should have been made to allow for the oscillation outside the box, but this is a point for an engineer to settle, and as the pumps were fixed under the control of the Superintendent of Public Works for the Colony, he should be called on to devise a remedy.

The distilleries at Argyll, Diamond, and Arnos Vale, require attention. At Arnos Vale the union joint on the drop pipe (which was not leaded) of spirit safe could be unscrewed and the spirit intercepted and taken out before it reached the spirit receiver. At Diamond the gauge indexes attached to both spirit receiver and vat were removable and could be made to indicate varying dips for the same quantity. The gauge on rum receiver could be undone and any quantity of spirit removed. Attention should be given to cocks having a screw nut at the bottom. Fastenings were provided in certain cases, but there was no difficulty in removing spirits from the cock without touching the fastening.

Frequent complaint was made of the use of concrete vessels as spirit receivers. They were found to crack and leak, and the spirit, it is said, readily seizes on the inside coating or glazing, and when this is broken or destroyed, leakage by absorption into the concrete, takes place and is said to be considerable. In one place visited there was no similar complaint and probably the trouble in the other cases mentioned may arise from imperfect workmanship or bad material used in manufacture. It is not improbable that these vessels were adopted instead of wood as they are sunk a little in the ground. Otherwise such an arrangement cannot be commended even if it be assumed that it has no unfavourable influence on the quality of the rum, which is doubtful. It is understood that the idea was that of the Government, but why wooden vessels, which would have been cheaper and better, had not been adopted, I cannot say.

The new arrangement of locked safes, new receivers, and new connections, cost, it is said, about £300,* of which the share of the Government was two-thirds to one-third paid by the planter. Who suggested this arrangement in connection with such small stills, I do not know, but it is clear that a simpler and better system could have been devised at a cost not exceeding £50 per distillery. This I am prepared to show. Any man having practical experience in distillery could have so advised the Government, and although no doubt, these arrangements were probably the best that inexperienced men could think of, it shows how desirable it is to submit proposed arrangements of the kind to expert experience in this country, if not elsewhere, before they are adopted.

SYSTEM OF MANUFACTURE AND ACCOUNT.

Wort is made from molasses and is sometimes set up at 13 Beaumé or, say, 92° Bates, which appears too high for the successful and complete fermentation of the wort solution. The wort requires from 10 to 14 days to ferment, and is removed into the still whenever the distiller pleases.

The spirits delivered from the worm pass through a secure pipe into the locked spirit safe, and fall into the locked measures to be pumped into the respective receivers provided for pure and impure spirits. The officer is required to visit on two days of each week, so as to be present to witness the drawing off of spirits from the spirit receiver. The casks filled are either lodged in spirit store, where there is one, or removed direct to Excise warehouse at Kingston, St. Vincent.

The capacity of carrying casks is ascertained by use of the diagonal rod, and a hydrometer is used in taking the strength of spirits. The diagonal rod ascertain-

* NOTE.—A little more, according to information since received from the Administrator.

ments are not correct, and unfortunately the policeman in charge of the warehouse in Kingston is not familiar with the use of callipers, and this necessitates the final acceptance of the incorrect capacity. The extent of error in the ascertainment of capacities is such that I intend to deal with the subject later on in my report.

EXCISE REGULATIONS AFFECTING DISTILLERS AND LICENSEES.

In the fermenting room there is no interference of any description. The wort is set up, fermented, and is, when attenuated, removed into still without previous notice or any other interference. The original gravity at setting up is not requested for revenue purposes, nor yet the quantity of wort, nor is there any regulation to require the gravity after attenuation to be shown. The quantity of molasses used and its density is unknown to the Excise.

There is thus absolutely no check on the quantity of spirit obtained from the still. The distiller has to keep a distillery book in which he is to record the quantity passing into and out of the 50 gallon spirit receiver or measure, and also the quantity of spirits filled into carrying casks and removed. No use is made of this information, no account is taken in the large spirit receiver, and a stock is not taken even where there is a spirit store. Some attempt is made to strike a balance at the end of the rum crop season, but so far as I saw, these results were not very encouraging or satisfactory. The glass gauges indicate very imperfectly the quantities of spirits which the vessels they are attached to, contain. I was made aware elsewhere that similar gauge glasses, where colouring matter was used, were practically useless unless they were frequently cleaned out (an operation that usually resulted in breakage), but in St. Vincent and Grenada, where no colouring is used, they are found to be unreliable, so much so, that in Grenada it became hopeless to found any reliable account on their ascertainment. Besides, spirits may be running into the vessel from the still during the time occupied in pumping the spirit from the vessel by hand into the proper spirit receiver.

The spirit passes through pipes, spirit safe, and into vessels, fairly well secured and of which the keys remain with the Excise Officer.

This officer must be present to unlock the spirit receiver when spirits are to be drawn off into carrying casks for removal to warehouse or elsewhere. He it is who grants the permit to cover the spirit during transit. To the end of each cask is affixed a paper label showing number of the cask in a yearly series, the quantity it contains, and the strength of the spirits. Where a rum store is provided it is locked both by the distiller and the officer so that the one cannot gain access without the other. During the distilling period the distiller has no access to the spirit, and if he wishes to be allowed access during distillation he must pay at the rate of 5s. a day for the attendance of an officer. There is the usual glass cup inside the spirit safe which is filled mechanically, and contains the usual glass beads to indicate the strength.

It will appear from these observations that in the absence of a persistent check, which it is difficult, not to say impossible, to apply with effect under the present system, the safety of the revenue rests wholly with the distiller and the officer. The distiller may register as much of the spirits produced or as little as he pleases, and the subsequent account at the receiver for delivery rests with himself and the officer.

This officer is an ordinary policeman with an official income of about 3s. 4d. per day. I am not prepared to say that these men are dishonest, but the temptation is great and their income is small. They do not enter into any bond or give any security whatever. It appears that some time since, mainly on grounds of economy, officers who were better paid and gave security were displaced to make room for these men.

It is very difficult to feel satisfied with the position from a revenue safety point of view. To sum up in brief :—

- (a) The revenue is without any check whatever on the spirits produced.
- (b) The gauge, by which the spirits entered in this distillery book is measured, is admittedly incorrect in its indication of quantities.
- (c) The still may be at work when the small receiver, or 50 gallon measure, is being pumped out by hand.
- (d) A corporal of police (coloured) at, say, 3s. 4d. a day is put in charge as a revenue officer.
- (e) The man is not required to enter into any bond, personal or other, and if

be were required to do so, his visible income is too small to expect him to pay any premium.

- (f) The keys are deposited nightly with the Chief of Police in Kingston, but the man is entrusted with them daily and all day.
- (g) The man I saw appeared to know little if anything of what a proper fastening means or what it should accomplish when in use. He had not observed nor did he appear to appreciate serious defects that had existed. I found on enquiry, for about four years.
- (h) His presence is practically the only check on what is taken out of the spirit receiver. There is no periodical stocktaking.
- (i) The capacities of the casks filled with spirits are admittedly not correct ascertained when the diagonal rod is used, and the casks are not callipered in the Custom's warehouse in Kingston, for the simple reason, as the Sergeant of Police in charge of the warehouse told me, that he did not know how to use them. On the same ground the fractional parts in the strength are disregarded, and a half-gallon proof is called one gallon, and anything less disregarded.

If the Chief of Police were left with complete freedom in checking the work of his policemen the matter would assume a somewhat different aspect, although certain strong objections would still remain untouched.

The Chief of Police, an active and intelligent officer, is the holder of so many other offices, implying considerable office work, that he cannot be expected to give serious attention to distillery check work. But it seems to me that the police, as guardians of the peace, should not be put to such work, but be left free to move about on duty and to give attention, amongst other things, to illicit practices that appear to prevail to some considerable extent in the island.

I give the following figures by way of illustration :—

—	Cases of Illicit Possession of Rum, &c.	Utensils seized.
1897...	Nil.	4
1898...	14	5
1899...	3	1
1900 ..	10	6
1901...	11	16
1902...	—	1

I am, of course, aware of the smallness of the rum industry in the Colony. Last year there were produced over 28,000 proof gallons.

Duty for home use was paid on 11,000 proof gallons.

Exported about 10,000 proof gallons.

If it be considered that the revenue derived from rum consumed in the Colony,—irrespective of the benefit to the Colony from rum exported,—last year reached to nearly one-twelfth of the revenue of the Colony, the subject is one that merits more than a passing attention. The estimated population of the island in 1900 exceeded 45,000. The exports and imports appear to have been fairly maintained, and the account at the savings banks shows a steady, if small, annual increase. The internal rum duty is only 4s. a proof gallon, and if more money is needed in connection with an improvement in the collection of the revenue from this source, it may, unless the recent calamity should make this impracticable, possibly be secured from an increase of 6d. or 1s. more of duty per gallon, and the discontinuance of the objectionable and exceptional practice of giving rum to the estate owner, free of duty for domestic consumption.

I am not, I repeat, prepared to furnish tangible evidence touching the integrity of these policemen, but I feel bound to say in face of the prevailing opinion in the West Indies, that coloured people as a rule lack moral stamina, I am not satisfied that the position does not offer too strong a temptation to men, placed as they are, by

this arrangement. In another island in the West Indies in which a similar arrangement exists, I was informed that the fact led to dismissals from the force for intemperance, and I regret to say that, as to the island referred to, a planter informed me that he was obliged to watch his own property, and more than once to recover it from the Excise officer's possession. In the case referred to the policemen took attendance by turns so that the same person did not attend on two consecutive days.

It is observed that in this Colony there is a somewhat unique regulation making it necessary to have soldered joints on important pipes stamped with a certain mark or letter engraved in a Government stamp. Instead of placing fastenings on union joints, &c., they are leaded to prevent unscrewing and the lead is marked by means of the Government stamp.

SPRIT RETAILERS.

Holders of Spirit Licences under section 27 of Ordinance No. 10, of 98, are required to make a return monthly in a form of which the following is a copy. It does not appear that this return is in any case followed up by a stock or such other account as to test its accuracy. Indeed, in presence of accounting for retail quantities being necessary this would be impracticable. A return in such a position, even with the sanction of an Oath before a Justice of the Peace, cannot be of much moment in preventing illicit practices. The case would probably be better met by setting the police free to attend to illicit distillation, &c., and rewarding them in all *bond fide* cases of detection.

RETURNS REQUIRED BY S. 27.

Name of Licensed person.
Place of Abode.
Place of Retailing.
Place of Storing.

PURCHASED.

Remainder on hand per last return on the day of .	Purchased since last Return.				Total number of Gallons to be accounted for.
	Gallons and proof.	From whom.	When.	Gallons and Proof.	On what Practices manufactured.
					Gallons and Proof.

DISPOSAL.

Exported.		Sold and delivered for exportation.		Warehoused.		Sold by Retail.		Remainder on hand to be accounted for in next Return.	Total accounted for.
Name of Vessel.	Date of Certificate of sale of ship-mast.	To whom.	When.	Gallons and proof.	When.	Gallons and proof.	When.		
									Gallons.

I, do swear that the above is a just and true return of all purchased and disposed of by me, for the month ended on the day of 189 No. of 189 .
Made out pursuant to the provisions of the Licences Ordinance, 189 —No. of 189 .
Sworn to before me, this day of 189 .

EXPORT ALLOWANCE.

*Excise Restrictions.**Estimated Value.*

There are no Excise restrictions of any description in connection with the operations carried on in the fermenting room. Fermentation is spontaneous. Fermenting wort may be removed from one fermenting vessel into another containing wort or wash. No account is required to be kept of the gravity before fermentation or after it is completed. Wash may be removed into the still at pleasure, and without previous notice to the officer. The spirit runs through close pipes, and through a locked spirit safe provided at the cost of the Government, passes into the small copper receiver already referred to, from which removal takes place into the respective receivers by means of a hand pump.

The chief of police, who had left the Colony for another similar appointment before I arrived reports on 20th June, 1899 (see West India further papers relating to local Excise restrictions) that "the cost of these fittings constructed to suit a still from 300 to 500 gallons' capacity is estimated at £300, of which the distiller is required to pay one-third." The chief of police, who was also head of the Excise, was at the time dealing with what was then, I believe, an accomplished fact, and if so he should have given the exact cost. I tried without success to ascertain the cost at the estates visited. An engineer, whom I met at one of the distilleries, said that he thought the cost was about £200. A more likely figure, although, in my opinion, above the mark, and as stated already an expenditure out of all reasonable proportion to the needs of the case. Taking £200 as the cost, £67 would fall to the share of the distiller.

* Interest at 6 p. c. on £67 expended in connection with

Revenue requirements in providing certain vessels, fastenings, &c.		
Annual renewals as above	...	£4 0 0
Contingencies	...	2 0 0
	...	2 0 0
	...	£8 0 0

22,605 gallons is the average of five years' produce, and the allowance comes to 13 farthing a gallon.

BARBADOS.

There are 441 sugar estates in the Colony, but only 7 making rum, a reduction of 6 in the number since 1892.

DISTILLERY PLANT.

Of the seven distilleries there are only two of considerable magnitude. One has a still capable of producing 50 gallons per hour. The remaining stills vary from a capacity of 294 gallons to 450. Excepting one, all the stills are common pot. Two excepted, the stills and the usual retorts connected therewith are worn out looking and patched.

By Stude's rectifying still, as it is called, spirit at 70 o. p. is produced by one operation. It is a German patent not differing much from Coffey's apparatus. In the analyser there are zig-zag channels on the surface of the plates which in Coffey's are plain. These channels are said to make the liquid pass more slowly over the surface before it reaches the drop-pipe, and by this means to deprive it more expeditiously and completely of its spirit. The spirit vapour in the rectifier in its passage upwards strikes against a series of marble slabs, kept cool by the trickling down over them of cold water, instead of against metal diaphragms as in Coffey's. And the vapour instead of being condensed in the last chamber of the rectifier, and drawn off at the spirit plate, passes from the top of the column through a line arm into a small upright condenser. By an automatic contrivance any oils present are drawn off from the spirit in the rectifier. No feints remain from the distillation.

The spirit safe is an inexpensive arrangement. It is a small copper vessel capable

* NOTE.—See note on page 42. Accepting £100 as the distiller's payment the allowance comes to about 1½, nearly one halfpenny a gallon.

of accommodating a glass cup, which holds the hydrometer and thermometer for observing the strength of the passing spirit, and the inflow and exit pipes. The only covering is an inverted glass bell jar, resting on a metal disc to which it is secured.

There are two spirit receivers capable of holding 1,000 gallons each, and a huge drum in a room adjoining, which, divided into 4 compartments, is capable of holding in the aggregate, say, 42,000 gallons.

The fermenting vessels, excepting those in use at the rectifying distillery, are small and call for no notice. The spirit receivers are, as a rule, made of wood, lined in some cases, with copper; those in use at Stade's, and the cylinder vat as well, are made of galvanised iron.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The proprietors of the rectifying still—"The West India Rum Distilleries Company"—have no sugar estates, and are simply distillers of molasses purchased from planters in the Colony. The whole of the molasses used is sterilised before it is diluted and set up in the fermenting vessels. This is probably a wise precaution, as the molasses come from more than one factory, and it would be difficult to reckon on their being always received in the same healthy condition.

The wort is set up in close covered fermenting vessels, and, under the advice of the Government analyst, the Company have gone to the expense of procuring an expensive apparatus for the purpose of cultivating a crop of pure yeast free from any unfavourable germs. This yeast is added to the wort, and the vessel is closed so as to exclude floating germs. Fermentation generally takes about 34 or 36 hours.

The pure yeast apparatus referred to is in common use in this country in important breweries for providing pure yeast. It is also in use outside for manufacturing such yeast for the use of brewers, but I am not aware that it has ever been used in a distillery in this country. Its use in brewing beer, which is consumed as it is, can be understood. Its application to distillery work, in which only the distillate is consumed, is not as intelligible, and there can be little doubt that fermentation in close covered vessels is not so favourable to good results, as when air is allowed to circulate freely. I was informed at the distillery that neither as to quantity nor quality was the result more favourable than it was before these arrangements were started. It seems as if under a mistaken conception, an arrangement which is essential in the making of pure beer, has been applied to distillery work.

Besides, the article produced is not rum. It is simply a neutral spirit that may be blended with whisky, or for that matter with brandy, without imparting to either a rum flavour. In fact, I found the spirit in use in the Laboratory, and regarded and used as alcohol or neutral plain spirits. It lends itself to admixture with imported whisky, and as every gallon of rum at 2s. 6d. of duty would displace a gallon at 10s. 6d. such an industry would pay.

The spirit produced runs through the safe into one of the spirit receivers referred to. The distiller reads the glass gauge on this vessel to ascertain the quantity, and turning a cock, allows the spirit to fall into one or other compartment of the large metallic drum referred to, and erected, I was informed, at a cost of £812.

In all the other distilleries fermentation is carried on in the usual way by the slow process. Distillation is by means of the usual pot stills connected with retorts, and the distillate falls into spirit receivers or spirit vats.

EXCISE REGULATIONS AFFECTING DISTILLERIES.

There is no interference of any description with the operations carried on in the fermenting room. The wash charger of Stade's still, by which the still is fed automatically, is not locked. The still itself is secured. The spirit runs through close pipes, falls into a spirit safe secured and locked, and passes into a spirit receiver which is also secured and locked. From this vessel the spirit must pass through secure pipes, and fall into a secure vessel in a store, of the door of which the distiller holds the key. It is not, however, the approved rum store. The spirit receiver or spirit vat is, in all the places visited, located outside the spirit store.

The Revenue Officer keeps the keys of all fastenings, safes, &c., and of the spirit receivers or spirit vats, as well as the key of the approved rum store door. There is no distiller's key for the store, which is, I think, unfortunate, seeing that if anything

went wrong, to produce an excessive loss of spirits, &c., in store, the distiller would probably deny responsibility, and throw it on the key holder. The store should have a distiller's as well as a revenue officer's lock, so that neither the one nor the other could gain access alone.

Whenever spirits are required to be drawn from the receivers or vats, the officer must attend to unlock the vessels, and allow spirits to be drawn off into casks, of which he is required to take an account. The casks filled are, as a rule, removed into spirit store on the premises.

In the smaller distilleries a practice exists of re-distilling rum. The rum to be re-distilled is of a strength varying from 20 to 30 over proof. When re-distilled the strength varies from 35 to 40 over proof, and by this operation rum is said to sell at a higher price by more than 1s. a gallon. It appears to me that this re-distillation might be avoided by providing a small inexpensive rectifying column above the retort, with a spiral pipe running its length through which water may be run. As it is this re-distillation (unless where a special vessel is provided for the distillate) must take place in the presence of an officer who is on stand, and is paid by the distiller for his attendance at the rate of 1s. an hour per day, and 1s. 6d. an hour at night.

I saw one re-distillation in progress. The receiver was open for the purpose of running the spirit into the still to be re-distilled. The safe was open, and the spirit was intercepted there and carried in earthenware jars and emptied into carrying casks. It is not possible that the same officer can be expected to give continuous attendance. It is said the work is popular because of the pay, and that the same officer takes continuous duty. It is, I think, one of the least satisfactory arrangements I have met with in the West Indies. Add to this that the distiller pays the officer money down for his attendance, and I think the acme of objectionable arrangement is attained. At one distillery visited, said to make the best rum in the Island, the spirit when re-distilling is in progress, is not accessible either for flavor or odour.

Distillers who re-distil should provide a separate vessel for the distillate, or, where there is more than one spirit receiver or vat, use one of them for this purpose. This is done at certain distilleries, and the officer's presence is only required to liberate the rum and to see it secured in the still. In any case the relation of employer and employed should not be allowed to exist in the payment for time, as it degrades the official.

In Barbados also soldered joints have to be stamped with an official punch, by which they are impressed with certain letters, and it is observed that bolts that would be riveted in this country are secured with wire crossed over the points and round the top, which is elapsed with lead stamped exactly like the old malt seals in use in this country when malt was exported duty free.

The spirit receivers or vats referred to are really used as vessels for the storage of rum. The rum is filled from them into casks in the officer's presence and it is only this quantity that is carried to Revenue account. The account is debited from time to time with these dribbles, and the credit side of the account is made up of removals from store for such purposes as warehouse, export, duty, &c. Such an account is furnished to the Governor for the Legislature monthly.

It thus appears that large quantities of rum stand in these vessels from time to time, of which no revenue account is taken. The officers have a vague idea that these vessels contain so much rum. On this quantity there is no check of any kind, and if by any means the distiller can gain access to the rum, which is not impossible in face of labelless locks, he might remove a large portion of this unaccounted stock without being suspected by an officer.

At Stade's distillery referred to there were said to be over 36,000 gallons in the drum at the time of my visit. Of this large quantity the Revenue had practically no cognisance, and is without any check whatever. The vessels drawn from are not necessarily emptied before the inflow of fresh spirit. They may remain, on the contrary, without being emptied for an indefinite period. If the vat be drawn from until it is emptied there is no check account or stock to show what relation the spirits drawn off bear to what had been run into the vessel. No waste emerges. All is left to the officer whose presence is necessary to the drawing off. No doubt the distiller knows what these receivers contain, and aided by his beads or hydrometer, as the case may be, at the safe, he must know pretty closely the strength, but he is not required to make any return of the produce.

In the large distillery two charge vessels, each capable of holding 1,500 gallons, are already in existence, and it was understood that the Company intended to erect two more. These only require proper dipping rods instead of glass gauges, which do not record accurately, and to have their dimensions taken and the areas tabulated so as to show the capacity to the $\frac{1}{10}$ th of an inch. It would then be practicable to take stock so as to check the quantities drawn off, and to ascertain the actual loss from natural waste or other cause.

Callipers are, it is said, used for ascertaining the capacities of casks. In the hands of trained men they are satisfactory enough, but not nearly so simple, or yet so satisfactory, as ascertainties arrived at by means of weighing. The mere operation of weighing appeals to the meanest capacity. It is easily learned and the liability to error is less than in case of the use of Callipers with attendant adjustments.

The number of stills in the Island having decreased, arrangements were in consequence made recently, to survey distant places by Police Magistrates' Clerks residing within a few miles of a distillery. Even if these men knew the work, as they do not, and could manipulate Callipers, as they cannot, it is difficult to see how they can give distillers reasonable accommodation. They are employed at Courts at least every other day, and in small debt cases more frequently. How these men can perform this work in addition to their own I cannot see, and at present there is no available means of checking the work of these raw recruits. The Controller of Customs has enough on hand already. But although the Revenue derived from rum in this Colony is (£ quote 1900) $\frac{1}{3}$ th of the whole Revenues of the Colony, there is only one capable man in immediate contact with the work, and he has besides to attend to Customs' warehouses in Bridgetown, and perform office work as well at the Custom House. All the rest is committed to raw hands for a saving of a few pounds a year. It seems the same all over the West Indies. There are too few officials of sufficient practical experience who know what is needful to safeguard so important a source of Revenue. It appears to me that the Officer in Bridgetown, if relieved of his town work, could, with a small addition to salary, and with liberal travelling allowance, accomplish all the distillery work out of town.

The locks in use are small brass locks said to be for the greater part Chubb's. They have no arrangement for a label as in St. Vincent and elsewhere in the Islands. The locks are furnished with keys common to all. This may be a convenient arrangement in one way, but it is objectionable in another as it interferes with the responsibility of the officer in charge.

The system of delivering casks for export without test, and at the receipt ascertainments, irrespective of the time they may have been in warehouse, is not, I think, commendable. The system may, in the absence of care, cover abstraction in warehouse before the cask leaves, and, assuming that abstraction takes place on board ship, it leaves the owner without help in discovering the source of abstraction or the extent of it. Under such a regime he would find it impossible to claim compensation from any shipping company.

SPRIT RETAILERS' LICENCES.

It is observed that in Bridgetown, the capital of Barbados, the highest spirit retail licence is only £30 a year. In a busy place, with a population of about 21,000 people, this figure, viewed especially in relation to £200 in Trinidad, appears rather low. The Government are to be congratulated as to the intelligent principle of assessing these licences on value of premises, instead of having, as in many other places, one rate of licence irrespective of value.

The amount of the still licence is rather heavy. There can be no object in discouraging distillation, as the number of stills is small enough already, considering the number of sugar estates. At one distillery visited, in which there were two stills of the respective capacities of 290 and 300 gallons, £60 was paid as licence duty, and only £30 is exacted for the large distillery, making 50 gallons an hour, or, say, about 10 times the distilling capacity of the smaller stills. Any loss resulting from a modification may be easily recouped, and more. It is observed that the internal duty on rum is only 2s. 6d. a proof gallon. This translated into its concrete signification means that a reputed quart bottle of rum will cost, retail, something under 1s. Rum must

therefore be one of the cheapest things in Barbados. The following figures may be of some interest in view of what is said of the poverty of Barbados at present.

—	1897.	1898.	1899.	1900.	1901.
Number of Sugar Estates ...	441	441	441	441	441
Sugar made (cwt.) ...	1,144,900	1,064,350	921,942	992,939	1,260,180
Rum made (gallons) ...	261,985	263,745	252,221	275,454	344,919
Consumption per head of Population (gallons),	1.46 £	1.44 £	1.3 £	1.21 £	1.22 £
Exports ...	736,163	769,231	845,599	919,011	946,522
Imports ...	1,008,608	1,054,835	998,006	1,045,952	1,021,680
Savings Bank ...	211,456	218,574	226,117	221,083	207,705

It looks as if Barbados could stand 6d. or even 1s. more of rum duty. A penny or twopence more a bottle.

EXPORT ALLOWANCE.

Excise Restrictions, Estimated Value.

There are no Excise restrictions in the fermenting room. The only evidence in distillery of such restrictions is to be found at the stills, the safe, the spirit receivers, and spirit vats where these exist, and the spirit store. One-half the cost of spirit safe, fastenings, &c., was defrayed by the Government. No service is rendered.

The following estimate is liberal :—

	£	s.	d.
For safe, fastenings, &c., on an original expenditure of, say, £30, half defrayed by Government, say, £15 at 6 per cent. ...	...	...	0 19 0
Interest at 6 per cent. on an expenditure of £50 in bringing up the store to the security required by the revenue ...	...	...	3 0 0
Annual cost of renewals ...	...	...	3 0 0
Contingencies such as payment of deficiencies on transit, &c. ...	...	...	5 0 0
	£11 18 0		

Say £12.

Taking a five years' average of rum output which is 259,000 proof gallons the allowance would amount to 3l. or 3l/100 of a farthing a gallon.

ST. LUCIA.

There are only two distilleries in the Island now, a reduction of four in the number since 1892.

DISTILLERY PLANT.

The capacity of the still at the Central factory is 3,000 gallons. That at Troumassée is 800 gallons. The Central factory has a still which, practically speaking, is new. It is connected with a retort which is the bottom chamber of a rectifier such as I found very much in evidence in British Guiana. There is a spirit safe constructed in such a way that the spirit delivered into it from the bottom, rises in the safe as if from a fountain. A cylindrical receiver, divided into two compartments, one for low-wines and one for rum, each of a capacity of about 100 gallons, receives the spirit from the safe, and from each compartment there is a drop pipe with a cock. A cask is put under the drop pipe and the spirit is allowed to fall into it.

The other still at Troumassée I did not see, but the Chief Officer informed me that the arrangements are similar to those described.

The wort is made from molasses in the usual way. The setting up—the fermentation, and removal to still, are without any revenue restriction whatever. The retort is secure, the spirit is conveyed through secure pipes and enters the spirit safe, secured and locked, the key of which the officer keeps. In order to regulate the flow of spirits into the safe from the bottom upwards, it is necessary to keep a considerable layer of spirits in the safe to regulate the upflow. This arrangement effected the strength of the sides so much that at the time of my visit, the use of putty had to be largely resorted to, so as to obviate leakage. In addition to this there was no free outflow from the safe to prevent flooding. There is a cock on each outlet, and as the distiller has control of these, the safe may be flooded at pleasure and the spirit intercepted and removed.

The cocks on the drop pipes had fastenings, but the screw nuts on the bottom were left unprotected, and when unscrewed they allowed a stream of rum to fall from the receiver. The answer made to these serious defects was the continued presence of the officer when the still is at work, and the further statement was made that before the officer left for the day the cylinders were emptied. This plea, if pushed to its logical conclusion, would dispose of all revenue fastenings at the distillery as wholly superfluous.

The officer's instructions require him to be present on stand at the distillery from 6 a.m. to 6 p.m., to ride to the distillery from Castrics, a distance, over hilly ground of, say, $3\frac{1}{4}$ miles, and to return to Castrics in the evening. Human endurance, at least in a tropical climate, must have certain limits, and in the presence of a normal day temperature of, say, 80° , it is very difficult to allow that reasonably satisfactory fastenings are unnecessary. They are necessary to relieve the intolerable strain of a stand of 12 hours without relief of any kind. It is equivalent to putting a man in training for lunacy. I say this notwithstanding I am aware that the same man is not sent to this penal settlement on two successive days. The officers themselves, I was told, dislike the work.

When the rum receiver is about full, a cask is placed under the drop pipe, the cock unblocked and opened, the cask is filled and then removed into the rum store on the premises. The cock on the drop pipe is then relocked. The low-wines are drawn off in the same way in cask or bucket from the low-wines' receiver and removed into the retort.

An officer's attendance is required daily, excepting Sundays, throughout nearly the whole year. The distillers pay at the rate of 3s. a day for this attendance. The daily routine of this employment must be as irksome not to say degrading to intelligent men, as the remedy is obvious, simple, and comparatively inexpensive. The cost of the yearly attendance is about £40. By the erection of a rum receiver capable of holding, say, 1,500 gallons, about a week's distillate, and a corresponding vat in store, the cost of the officer's attendance would be saved, and I am satisfied that the cost of providing these vessels would not—wood, connections, and workmanship—cost more than the amount paid for one year for the officer's attendance. The proposed arrangement would be less expensive to the distillers, contribute to greater freedom, and to less bondage for the revenue officer, as he would be required only when the receivers had to be discharged. But I shall deal with this generally hereafter. (See page 70.)

It may be interesting to remark that the Central factory is one that originally, and only a few years since, cost, including a considerable sugar estate, above £100,000. It is not a little difficult to fathom how so huge an amount of money was spent on so unpretending looking a place, and this impression is deepened by the consideration that when the affair reached the stage of hopeless failure, and was subsequently sold to the present company, the sum paid is put down at £9,000 or £10,000. That the thing was overstaffed and grossly mismanaged there can be no doubt unless one is to disbelieve the local history. Its failure as a business concern has temporarily brought discredit, unmerited discredit, on the idea of establishing central factories elsewhere. Much depends on proper management. One man hopelessly encumbers an estate, another in a few years pays off £40,000 of these encumbrances. This is not a suppositions case.

The Old Winchester measure of capacity is used in this island instead of Imperial measure. It is about one-fifth more than the Imperial. The diagonal rod which is used to ascertain the capacities of casks, and the gulkonage according to the dip of liquor in the casks, is graduated for Winchester measure. The loss of duty as between the Winchester and the Imperial is about 9d. per gallon against the revenue. This is the only Colony found using this antiquated measure. It

The distiller is also required to make a quarterly return in the following form :—

QUARTERLY RETURNS BY DISTILLER.

SAINT LUCIA.

Quarterly Return of the Quantity of Spirits produced or manufactured by
in the Colony of St. Lucia, for the Year ending the _____ in
the District of _____, 1 _____ day

Name of Estate.	Made.			Disposed.				Total accounted for.
	Remainder on hand per last Return.	Made since last Return.	Total to be accounted for.	Reported per Certificate.	Delivered to Factors or Agents.	Lost by Leakage and Evaporation.	Lost in the Island and liable to Duty.	Remainder on hand to be accounted for in next Return.
Total ...								
Names of the Persons to whom any Spirits have been sold for retail, and their domiciles or residences respectively.								
				Date of each Sale.	Quantity sold at the date of foregoing Column.			Date of removal of such Spirits.

I, _____ of _____ in the Colony of St. Lucia, Proprietor
[Distiller, Agent, or Attorney], of _____ Estate [or as the case may be], do solemnly
and sincerely swear that the above Returns, and all the items and entries therein contained, are
strictly true in every particular, to the best of my knowledge, information, and belief; and that I, the
said _____ do make the above oath in the plain, ordinary, and literal sense of the
words therein contained, and without any equivocation or mental reservation whatsoever.

So help me God.

(Signed)

Sworn before me, at
know the Deponent.

this

day of

, 1 _____, and

(Signed)

Magistrate

District.

In a case in which the revenue officer himself is on the spot and takes the account throughout, it is difficult to understand why the distiller is required to book, for revenue purposes, what are officers' accounts. If the book is essential why is it not posted by the officer? If the distillery is properly secure, keys with officer, and no operation can be carried on without his presence, not a cask removed or a permit issued, it cannot be necessary to call on the distiller to swear to the accuracy of the officer's accounts. Assuming the Chief Officer's check is fairly efficient, and it appears to be, the doubt, if any, calling for swearing to the truth of the matter appears to attach itself more to the revenue officer than it does to the distiller.

A Bond is required for the removal of spirits duty free.

SPIRIT RETAILER'S LICENCES.

A monthly return, sworn on oath before a Justice of the Peace, is required from spirit retailers, showing the quantities on hand at the close of the previous month, received since, and on hand the last day of the month. The stock of the retailer is taken by an officer once a quarter and compared with the monthly return. This regulation is meant to provide against the introduction into stock of spirits illicitly, but as the account taken can only show some approximation to the quantity sold, (all small quantities less than a bottle being disregarded), I am at a loss to understand what effect this account has in minimising the risk to the revenue from illicit spirits. The book may be useful as a record of rum received. It appears from a return called for, that the arrangement has been fruitless in discovering anything for at least ten years, and as far as I can estimate its value it may remain for a long period to come equally barren of any useful results.

It may be mentioned as a curiosity, that the spirit bottle licence covers sale of a beer bottle, and it is said that separate bottles of beer are sold to a considerable extent. There are only three such licences in the island.

The annual licence of £50 for the use of a still appears excessive. It is certainly not called for so as to keep the trade select, for until this year and for several years back there was only one distillery at work. The high licence stands as an exception in the West Indies.

EXPORT ALLOWANCE.

Excise Restrictions. Estimated Cost of.

The distillers have been put to expense for Excise restrictions in so far as they provide fastenings, spirit safe, &c., so as to insure access to the spirit only in presence of the officer. The rum store is admittedly necessary for storage and was not erected at the instance of the revenue. There is no claim to compensation for service as practically none is rendered. The 3s. a day paid for the attendance of an officer must be included as a restriction. But by the adoption of the arrangement already suggested this payment of 3s. a day may cease.

	£	s.	d.
(1) Interest on expenditure in providing spirit safe, fastenings, &c., seen by me, could not have exceeded £20. At 6 per cent. per annum ...	1	4	0
(2) Cost of maintaining these and spirit store annually...	2	0	0
(3) Officer's attendance 3s. a day for, say, 250 days a year	37	5	0
	£40	9	0

Say £41.

Taking a five years' average on rum output as 69,886 proof gallons, the allowance would be 1.12 farthing a gallon.

DOMINICA.

There are only six distilleries in Dominica working at present out of a total of 24 in 1802. The remaining 18 stills appear to remain intact, but to have ceased working for several years.

DISTILLERY PLANT.

The stills at present in use vary in capacity from 300 to 700 gallons. They are the ordinary pot still attached to retorts such as are to be found nearly everywhere in Jamaica. The spirit vapour on its way to the ordinary condenser passes through coils of a pipe in a vessel called a wash heater. This means increased condensing power, and, at the same time, economy of fuel, as the wash passes into the still at a high temperature instead of being cold. The worm end is inside the spirit store, which is locked by the distiller and by the revenue officer, so that the one cannot gain access without the other.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The wort is prepared from a mixture of molasses, skimmings, and dunder, reduced with water to the requisite density. Set up, it ferments spontaneously, occupying, in this stage, from six to ten days. It is then removed direct into the still. In the retort are placed low-wines. As distillation proceeds the spirit falls from the worm end into an open tub standing inside a secure store under revenue lock. The spirit is *ladled* up in officer's presence into carrying casks which are retained in spirit store until, probably for want of space, or because they are required to meet some demand, removal takes place to warehouse elsewhere, or for any purpose for which the spirits are required. Low-wines are also ladled up in the same way into a cask, and are removed in an open tub from the spirit store in officer's presence, as they are required for use in the retort.

The rum is usually filled into carrying casks of from 55 to 65 gallons capacity, which is ascertained by means of the diagonal rod. Vacuities are measured by the line for gallonage on the same rule, neither being accurate for all cases. The use of hydrometers, adjusted to a certain high temperature, is also common, but there is no guarantee that the temperature of the liquid agrees with that of the instrument, and thermometers appear not to be in use.

EXCISE REGULATIONS AS TO DISTILLERIES AND OTHER EXCISE SOURCES OF REVENUE.

The distiller is required to give previous notice of his intention to distil. There is no revenue requirement to be complied with in respect of setting up the wort, fermenting it, or removing the wash into the still. The distiller is bound to enter in the distillery book the gallons of molasses brought into the distillery, the quantity of wash (wort is probably meant) set up, and of wash distilled, (requirements which, in the absence of a record of the density of the molasses, the setting up gravity, and the gravity after attenuation, appear of little use), the date when distilled, and the quantity of rum produced. He is not required to make any periodical return. There is no fastening or lock on still or retort, and the first and only one to be met with in the distillery is that on the spirit store.

The distiller is to account to the officer for any wash entered in the stock book which is deficient or has disappeared. As there is no evidence that anything is required to be done by which the officer could obtain a knowledge of the quantity of wort or wash, independent of the distiller, it is difficult to see on what other source he is to depend for information which would enable him to carry out the terms of his instructions.

The arrangement of a locked store and the want of a proper receiver to hold the stillate, make it incumbent on the officer to be present whenever distillation is in progress. He is simply all day on stand in the store seeing occasionally to the filling of casks from the tub below the worm end, and to the removal of low-wines as they are required for distillation. He furnishes the Chief of the Excise (the Treasurer) daily, a return showing the gallons of low-wines taken from rum store and emptied into the retort, the proof gallons of rum and also of low-wines produced at the end of the day. The officer's daily return to the Treasurer is compared with the corresponding entries made by the distiller in his distillery book. As the officer himself takes the account which he posts in his own book and which the distiller posts in his, this check does not appear of much value.

I cannot find that any permanent record of quantity made, is kept either at the rum store or at the Treasury, until the spirit is sent out on payment of the duty or for some other purpose. The drawing off in store, on which there is no check whatever, is left wholly to the officer and the distiller. A constable in receipt of from £30 to £40 a year, with an additional 1s. a day for each day he is on stand at a distillery, is the revenue officer. He is supposed to be checked by certain district government officers at salaries ranging from £150 to £250 a year. But they are engaged in the performance of so many other duties in the Colony, that what check they apply is fitful and ineffective. It consists of taking stock now and again in store, apparently once in two months. The Chief of Police himself is charged with revenue supervision, but it appears that he is not paid for the work, and that therefore he has not given it attention. But even if he did the fact would not be an adequate remedy for the existing state of things.

The facts as they appear show that a man in receipt of, say, 2s. a day of police pay, is put in charge of distillation and required to stand all day in a rum store, surrounded with newly-made rum and with some, say, a year or more old. The check of his work,

if it can be dignified by such a name, is of the most shadowy. In such circumstances the arrangement by which a policeman is not allowed to attend at the same distillery on two consecutive days is a wise one, but it is scarcely adequate to the removal of the temptation to imbibing liquor or to slackness on stand. The system is one calculated rather to demoralise the police than to help discipline, and it is difficult not to think of the arrangement as the despair of the responsible heads of the police force.

I asked the Chief of Police, officially, to favour me with a statement of his opinion as to the employment of the police as distillery officers, and how far such employment produced habits of intemperance, or interfered with discipline and the ordinary work of the force. The following letter which reached me after I had left the Colony speaks for itself.

(No. 23. 1902.)

SIR,

Leeward Islands Police, Dominica, July 8, 1902.
I HAVE the honour to acknowledge receipt of your letter of 2nd July, and, in reply thereto, beg to state:—

- (A) The police in Dominica were first appointed excise officers in December, 1889, and have since continued to act as such.
- (B) While employed on this duty they are practically useless as policemen.
- (C) The employment of police for such duties in my opinion has a most demoralising effect, and has in many instances reacted injuriously on the men employed.

Since January, 1897, in the Dominica Division of the Leeward Islands Police, whose average strength is 34 non-commissioned officers and men, 15 men have been dismissed for misconduct, 6 for drunkenness or offences arising therefrom, 9 men have been fined or otherwise punished for drunkenness, 21 men have been discharged from the service as physically unfit, and I think I am correct in stating that the waste of men in this division alone more than equals that of all other divisions of the Leeward Islands Police Force.

I have shown this letter to the Inspector-General, and he desires me to add that he entirely concurs in my opinion on this subject.

I have, &c.,

THOMAS A. GRAY,
Inspector.

J. Steele, Esq.

I may state also that since leaving the Colony I met a proprietor of one of the estates, who makes rum. He informed me that when the spirit store was open, he was obliged to keep a close watch on his property, and that he had more than once to recover his property from the guardians of the revenue who had made provision for carrying away the spirit.

I am strongly of opinion that this arrangement is bad, and that it should be determined. The police could well co-operate with revenue officers in their endeavours to keep down illicit practices, and they would be more effective in this and in other directions if they were relieved of distillery work and its unfortunate consequences.

The annual revenue from rum consumed in the Colony is about £4,000, or about one-seventh of the total revenues of the island from all sources. With the spirits imported, exceeding an annual revenue of £5,000, spirits of all kinds consumed in the Colony bring in about one-third of the annual revenue. The excise revenue, although small, is comparatively important enough for the adoption of arrangements attended with less risk to the revenue. If the Government district officers are being relieved of highway affairs by the creation of Local Boards, they may have more spare time. It is observed that the internal rum duty is only 2s. 3d. a gallon. Perhaps a slight increase would provide the additional cost of effective supervision.

The revenue arrangement in this Island is certainly one of the least acceptable met with in the West Indies. Even as it is, had proper receivers to hold, say, six days' distillate, been provided, and a spirit safe to enable the distiller to observe the strength of the spirit passing through it, all this arrangement of a stand at the can pit would have been quite unnecessary, and the officer's presence required only once a week to discharge the receiver, after taking account of its contents. The cost for each distillery in providing receiver, &c., need not have exceeded, say, £30.

EXPORT ALLOWANCE.

Excise Restrictions. Estimated Cost of.

There is no interference of any kind with work in the fermenting room, and the only revenue lock at the distillery is on the rum store door, which has also a distiller's lock, of which he holds the key. The book-keeping does not occupy more than a few minutes daily, and no return is called for from the distiller.

Excise restrictions of moment are conspicuous by their absence, and the little there is is not worth estimating. There was no complaint of delay or inattention.

MONTSERRAT.

I was not aware until after I had landed in this Colony that rum distillation had ceased in 1899, and that since then, all rum consumed in the island is imported from neighbouring islands. As there was no means by which to leave before another week had passed, I endeavoured to ascertain why an island in which so much sugar is grown gave up producing the by-product rum.

I found that in 1889 a drastic Ordinance was enforced, which required distillation to be conducted only in presence of a revenue officer, who had to be paid for by the distiller at the rate of 3s. a day for attendance. It is further stated that all losses occurring in spirit store, accidental or other, were charged with duty and not remitted, although the spirit was all the time under the officer's lock and key. It is difficult to confirm or disprove the accuracy of the latter statement, but I am bound to say that when I mentioned the matter to Mr. Dyott, who was then a revenue officer, in charge of a distillery, he did not deny the truth of the assertion, and said that the revenue officers had directions then to be strict.

At the time the Ordinance was passed, there was considerable evidence of illicit distillation in the Colony, and under such circumstances it seemed desirable to encourage the production of rum legally, so as to discourage the production and consumption of the illicit article. Be it the right or wrong view to take, it is one that was acted on successfully at one time in the history of this country. But apparently the contrary view was acted on by the then Commissioner for this island, and the policy was eminently successful, as it crushed the industry, and resulted in closing the last distillery in the island, and, as if to hasten the pace, 9d. more was added to the duty in 1892 and 33½ per cent. more in 1896. All the rum consumed in the island now, is imported, and the sugar planters are left with molasses on hand that might have been turned into rum for consumption in the island at a remunerative price, but which is, as molasses, practically unsaleable and a considerable loss.

It is not a little remarkable that in a presidency controlled by one and the same Governor, embracing Dominica, Montserrat, Antigua, St. Kitts-Nevis, and the Virgin Islands, Montserrat alone should have been singled out for this drastic treatment. In Dominica, a Rum Ordinance similar in most respects to that for Montserrat, was passed at the same time, with the important distinction that the attendance of the revenue officer to witness distillation, although required, was not to be paid for by the distiller. In all the other islands included in the presidency, the open can pit still obtains, and as to one of them (Antigua) a locking-up Ordinance was passed last year, but is as yet allowed to remain in abeyance.

It is difficult to understand the reason for singling out Montserrat for such severe treatment, and it is not a little remarkable that the regulations made by the Governor and signed by the Commissioner require an elaborate return from the Montserrat distillers which is not so much as mentioned in the Ordinance, although it is admitted the Governor had power to require such a return. A corresponding return was not required from the Dominica distillers, although the Ordinance for that Colony is drafted on practically identical lines. For form of return see Appendix D.

The Ordinance fixes no limit to the minimum quantity of rum that may be removed at one time. In the regulations it is fixed at 50 gallons, and, excepting one or two purely local cases, the distiller was required to pay 4s. for the attendance of an officer, provided he wished to remove a smaller quantity. In Dominica ten gallons was the minimum quantity without any conditions.

As the number of licensed stills (five in 1892) decreased, the number of cases under the Rum Ordinance increased, reaching 22 in 1899. Most of the convictions obtained were against people living in districts where licensed stills did not exist, and were

small owners, who found difficulty in disposing of their molasses. At the present time, when molasses is not saleable at two cents a gallon, and when it would not pay to cart it to the ship's side, had there been a licensed still in the island, an opportunity for disposing of the molasses would have been afforded to large and small sugar owners. There are at present in the island hundreds of gallons of molasses of which no use can be made. This, it must be admitted, is an incentive to the illicit manufacture of rum, which is well nigh irresistible. This is shown by a return of cases detected in connection with the possession and use of unlicensed stills and of illicit spirits for ten years ended 1901. During the period from 1892 to 1899, covering eight years when licensed stills were in operation, the number of cases was 93, or a little over four a year. Of these there were 18 cases of possession or use of illicit stills. During the period from 1899 (when the last licensed still ceased working) to 1901, covering two years, the number was 30, or 15 a year; 19 were for illicit stills, or concerned those engaged in illicit distillation.

It would be difficult to obtain more convincing evidence of the mischief wrought in this island by the introduction of the Ordinance of 1889, and it is very difficult not to sympathise with these people, who find themselves in possession of molasses of which they can make no use, not to mention the more serious aspect of the case, the lawlessness and trouble that recourse to smuggling brings in its train.

I saw several of the planters, who met me for conference on the subject, and they informed me that although anxious to have such a factory they were not in a position, financially, to put up a small central factory to meet the needs of the island. Not one of the old stills is now to be found in the island. The Commissioner, who takes an active and intelligent interest in the welfare of his people, and who knows more about the island than any other person, confirmed the accuracy of the statements made to me. And I can understand even if the sugar industry had been in a more flourishing condition than it is, the planters have not yet recovered from the severe losses that resulted from the hurricane that a short time since devastated the island.

Assuming that any arrangement is practicable to meet the case, and it appears to me one of great hardship, any still to be erected, together with the necessary plant, should be arranged on the system of providing a receiver in which to take account for raising a charge, so as to dispense with the necessity of paying for attendance.

ANTIGUA.

There are six rum distilleries in the island. There were 11 in 1897, and there are 65 sugar estates.

DISTILLERY PLANT.

The stills are the common pot connected with ordinary retorts as in Jamaica. The stills hold only from 300 to 500 gallons. In certain cases retorts are made of wooden staves joined to a metal arm through which the vapour is delivered into the condenser. In one case the top or dome of the still consists of hooped wood in metallic connection with the retort. These retorts are, as a rule, enclosed by wooden palisading, the entrance to which is locked, and so is the spirit store door into which the worm end delivers the distillate. The keys remain in the distillers' possession. The stills seen are worn out and patched, and look as if any further effort in that direction should shape itself into renewal "stock, lock, and barrel." The loss from escape of spirit vapour, because of defective plant, must be something not inconsiderable. The fermenting vessels call for no notice, but greater cleanliness in the fermenting room would probably conduce to healthier fermentation.

SYSTEM OF MANUFACTURE AND ACCOUNT.

The wort is prepared from a mixture of molasses, skinnings, and dander, or spent wash, reduced with water to the required density. No yeast or other ferment is required. The gravity before fermentation is about 75° Bates. The wash may be removed at pleasure into the still. The spirit, pure and impure, is delivered at the worm end in spirit store, into open tubs capable of holding about 50 gallons. The rum is filled into casks, and the low-wines are either removed by bucket to the retort outside or put into a cask and pumped into the retort by means of a movable pump.

In the absence of running water the worm tub is frequently kept cool with water bucketed from a neighbouring tank. There is no spirit safe, and the capacities and contents of casks are ascertained by use of the diagonal rod.

EXCISE REGULATIONS AFFECTING DISTILLERIES AND OTHER SOURCES OF EXCISE REVENUE.

There is no Excise interference in the fermenting room. The stills are not required to be locked, but the retorts stand in a locked compartment, and the rum store is locked. All precautionary measures to safeguard the distiller's property. The spirit must be delivered into a locked rum store. Keys in distiller's hands.

The distiller is at liberty to fill spirits into casks, each containing not less than 25 gallons, but he cannot deliver any for home consumption or for any other purpose without a permit, which is granted by the Treasurer, who is the nominal head of the Excise.

A distillery stock-book must be kept by the distiller, in which he is to enter daily the quantity of rum made, and to show the quantity permitted from stock and the balance on hand. He is required to make a return quarterly to the Treasurer, showing an aggregate of transactions, rum made, delivered, &c., during the quarter. The revenue officer visits quarterly to compare the distiller's return with the distillery stock-book, and to take stock, but he is expected to make surprise visits. There are no fixed officers in charge of these distilleries, which are visited from St. John's by gentlemen who are employed in the Treasurer's Department. This officer allows any loss in the store which, in his discretion, he may consider reasonable, provided he is satisfied with the distiller's explanation. The distiller's return is then handed to the Treasurer, showing the deficiency found and written off by the officer, and is thus subject to review.

The distiller's return is posted in a book at the Treasury, so as to show for each quarter the quantity from still as a debit against deliveries for all purposes, stock in hand, and wastage.

It seems to me very desirable that some lead should be given to officers as to what they should, all things considered, regard as reasonable waste. Otherwise, in the absence of fixed revenue service in connection with distilleries, the view taken of waste may show considerable differences in dealing with practically similar cases. It would in such circumstances be convenient to fix a maximum rate, beyond which concession should not be carried, unless as the result of accident clearly defined. Only by some such arrangement can it be brought home to the distillers' servants that fluctuating losses, which cannot be reasonably and clearly explained, will not be recognised as entitled to favourable consideration. Such a limit can only be determined by reference to past experience in cases in which it can be considered that the wastage had been due to natural causes.

It is tacitly admitted that the hard times in which the sugar industry finds itself, has produced some effect on the Revenue Department in not enforcing the legal provision too strictly, and the same cause has operated as yet to save the distillers from being subjected to the much more stringent requirements of the Rum Ordinance of 1900, which is still left in abeyance.

Unfortunately no record has been kept of detections made from time to time of persons engaged in illicit practices connected with rum, and I am informed, and this is certainly extraordinary, that no statistics are available. It seems to me that the sooner a register for information is brought into use the better. It is, however, significant that, (so I was informed), the spirit retail shops in the country had to close for want of custom. The impression is very general that the present system means a considerable loss to the revenue. At all events, if rum is not taken, it is not for want of opportunity. There is no check on the produce.

On the other hand the plant is in such a hopelessly wretched condition, that I fear if the Ordinance of 1900 be applied, and strictly enforced, it will lead to the discontinuance of more distilleries, an undesirable result, seeing that molasses is a drug in the market. In providing receivers to hold the distillates the same difficulty will be experienced as in Jamaica. Excavations will be necessary, as the can pits are under the ground level. Besides, the Ordinance makes no provision for such a receiver as would admit of an account for raising a charge outside the store, which would control manipulation of spirits within. Assuming the Ordinance of 1900 to be applied to the industry in its present condition, I think it would be only fair that the Government

should pay practically all the expense that may be incurred in making the alterations necessary.

But not only is the distillery plant in this island in a very done up condition, the adjoining sugar factories are practically all worked with very primitive machinery, by which little more than half the juice is extracted from the cane. The lands yield excellent crops, from 25 to 30 tons of cane per acre, a yield that might, according to the Imperial Department of Agriculture for the West Indies, be much increased by the application of suitable manures. In few islands is there more positive evidence of the need of a central factory or two, equipped with up-to-date machinery, with the prospect of remunerative results, even at the present low price of sugar.

The usual particulars scribed, or painted, on the heads of casks in this country is omitted in this and other islands. Instead, a paper label, on which are shown the capacity and strength, is affixed to one head.

SPRINT RETAILERS.

It is observed that there is no minimum limit to the strength at which a retailer can sell spirits. This island appears, in this respect, an exception to the general rule.

EXPORT ALLOWANCE.

Excise Restrictions.—Estimated Value of.

The only lock in the distillery is that on the spirit store door. There is no interference that can be estimated. The book-keeping at these small distilleries cannot occupy more than a few minutes a day. There are no public carriers by road, and charges for losses in case of removals seldom occur. Practically there are no Excise restrictions worth valuing.

ST. KITTS—NEVIS.

There are only 7 distilleries in this Island, a reduction of 24 since 1892, when there were 31. There are 81 sugar estates, large and small, compared with 110 in 1892.

DISTILLERY PLANT.

The common pot still, of a capacity varying from 250 gallons to 1,000, is in use. It is connected, as a rule, with two retorts, one reserved for Low-wines and the other for stronger Low-wines. The worm end is inside a locked rum store. Sometimes one retort is made of metal and the other of wooden staves hooped with iron. In another case the top of the still is similarly made of hooped staves, and in the same case both retorts consist of wood. The fact is, this island surpasses all the rest for specimens of broken down, dilapidated looking, patched up, distilling plant. There is one exception, but otherwise the loss from leakage of spirit vapour, &c., by the use of such plant must be very serious. And it is very remarkable that the worst in the Island by far, is the property of a gentleman who is said to be wealthy, to own a considerable portion of the Island, and to practically control the rum industry there.

I visited a distillery belonging to this gentleman not far from Basseterre, and never saw anywhere such a filthy and broken down looking place. Filthy everywhere. Filthy outside the fermenting room. Filthy inside. In the yard it was difficult to get over the stagnant and pestilential matter that one met with everywhere. The spirit store is dark and filthy, cozy and dripping from above, owing to the overflow from the fermenting vessels, slimy below, and stinking. So much was this the case that the distiller had, contrary to Ordinance, to fill the casks of rum outside the door on a spot elevated somewhat above the prevailing filth. Surely the Government should have power to shut up such a noisome place until it is put into a sanitary condition. How any Government official can take stock of spirits in such a hideous place I am at a loss to know.

SYSTEM OF MANUFACTURE AND ACCOUNT.

Wort set up for fermentation is made of molasses, skimmings, dunder, and water sufficient to reduce the mixture to the required density. The wort is usually set up at from 71° to 77° Bates, and takes from 10 to 12 days to ferment. It can be removed into

the still at pleasure. The rum runs into an open tub in store, and is filled into casks lying in store, by the use of the usual 5-gallon wooden measure. The Low-wines and strong Low-wines fall from the worm end into an open tub, and are filled into casks that stand in store until the impure spirit is required for distillation, when it is carried out in buckets. The capacity of casks is ascertained by the use of the diagonal rod, and the ascertainment of gallonage of the same rod are accepted when the cask is only partially filled.

By Ordinance the distillers are required to provide themselves with hydrometers, but this they have not as yet done. In consequence, casks of spirits before delivery from either of two distilleries near the town, distant, say, 1 and 2 miles respectively from the town, have to be carted into town to be taken account of. I assume, however, that for the most part the spirit is required for town consumption, although some may have to make the return journey for delivery somewhere else. For remote distilleries the practice is to send an officer to take delivery account.

Beads or bubbles are used by the distiller for taking the strength, and as these are always found to differ from the hydrometer by about $2\frac{1}{4}$ per cent., the distillers' entries in the distillery stock book must be incorrect at least to that extent. But at one of the distilleries visited there was only one bubble (the 17) in the place. The bubble stuck to the bottom of the test glass, but all the same the strength was ascertained by means of this stubborn bubble.

The same distiller could not, or would not, say what quantity of wort any particular vessel held. He said he did not know, but the statement is scarcely to be credited. At the same time it is not improbable that the true density of the wort is unknown to the distiller himself. When a saccharometer is used, it is of necessity adjusted to a certain standard temperature, but in the absence of a thermometer it is impossible to say that the wort to be tested is of that temperature. It may be less. It may be more. No distiller appeared to know that a certain correction should be made for differences either above or below the standard.

EXCISE REGULATIONS AFFECTING DISTILLERIES AND OTHER SOURCES OF EXCISE REVENUE.

The distiller's operations in the distillery may be said to be in no sense regulated by the Excise. Nothing is touched by regulation in the fermenting room; nothing during distillation. The retorts are not locked, and they do not always stand in locked cages. The rum store is, but the distiller holds the key. The following will show in brief how the case appears to me.

- (a.) Nothing is known either of the quantity or density of the materials used.
- (b.) The quantity of wort set up is unknown to the Revenue Officer, and so are the densities before and after fermentation.
- (c.) There is then not one iota of check in Revenue hands on the quantity produced. The distiller may enter in the stock book as much or as little as he pleases, and, unless he is caught in the act of appropriating rum after and before the stock is adjusted, runs no risk. This is, undoubtedly, a loose system, for beyond the occasional visits of a Revenue Officer to take stock in store, the distiller is left the fullest freedom in dealing with his rum.

In a return furnished to me I find that in—

- 1893 there were 61 gallons short in one distillery stock on which duty was paid.
- 1895. At another distillery there were 181 gallons short on which duty was paid and a fine recovered.
- 1896. On the estate just mentioned an overseer was found removing 5 gallons of rum to his own house. Rum forfeited and fine imposed.
- 1897. Manager altering figures in distillery stock and fined.
- 1899. On the same estate as the first-mentioned there were 151 gallons short on which duty was paid.
- 1895. Nevis. Manager is prosecuted for removing from distillery a demi-john containing 2 gallons without a permit.

The distiller is required to keep a stock book and to declare quarterly to the accuracy of the entries he makes therein. The rum industry should, in my opinion, be brought under a stricter supervision.

There can be no doubt of the fertility of this Island, and with machinery up to date it can compete successfully, in producing sugar, with any other part in the West Indies.

TOBACCO.

An experiment was made last year by Mr. Lunt, Curator of the Botanical Gardens in St. Kitts, in growing tobacco on several places on different farms. There can, I think, be no doubt that a large area of this Island is well fitted for tobacco cultivation, and with an intelligent, thoughtful, and resourceful man like the Curator I have every hope that the experiment will prove a success. Havana and Sumatra are the plants with which the experiment has been made. The leaf grown has a good appearance, and when the drying, curing, including fermenting operations, are perfected the industry of tobacco growing should be profitable. I saw some good specimens of cured leaf in Kingston, Jamaica.

EXPORT ALLOWANCE.

Excise Restrictions.

Estimated Value of.

There is no restriction that I can see in the fermenting room or in the distillery. The Revenue Ordinance makes no demand either as to vessels or buildings additional to what had been in existence already. There is thus, practically nothing, the value of which can be estimated for Surtax.

The stock for Revenue purposes to be balanced by the officer at any time, and in no case less frequently than once a month, and the details of such account posted in the distillery charge and stock book.

The officer should also post his charge in the proper column of the distillery charge and stock book, immediately after it is taken, and at the close of each month, furnish a return to head quarters showing the total quantity at proof produced, and also an aggregate of the deliveries, together with an account of waste allowed or charged with duty, as to which it is advisable that some maximum limit should be fixed to guide and reasonably to restrict the officer's discretion.

At head quarters, an account should be opened for each distiller to show the monthly aggregate (liquid and proof gallons) produced and delivered with any allowance for waste claimed and allowed. In this country, the maximum limit for waste, free of duty, in spirit store, is fixed at $1\frac{1}{4}$ per cent. Beyond this, up to 3 per cent., duty is charged. Exceeding 3 per cent. no allowance for waste is made in store. It is not probable that the waste in the West Indies will greatly exceed these rates. There are, as a rule, many casks that remain some time in store after they are filled, and in such cases, the waste is much less than it is in newly filled casks.

Casks filled in store should be marked and numbered either by scribing, painting or labelling, so as to distinguish those recently filled from those which have been filled some time; the number, commencing with No. 1 on the 1st of January—the number and year thus 1/02—the capacity, and the name of the distiller or plantation.

In cases of delivery for consumption in the Island in which it is not convenient for the officer to take the account for duty himself, the duty receipt should be handed to him by the distiller on his next visit. All documents relating to deliveries after they have been compared with the entries in distiller's charge and stock book, and the fact of such a comparison noted in the book, should be sent to head quarters.

In the case of removals to a public warehouse, the warehouse officer should make out a receipt which he should at once send to the distiller to be produced to the officer in connection with the delivery entries.

In the event of bond being given to cover such removals, (and this is required only in a few cases at present—although, in my opinion, it should be a condition precedent to any removals of duty free spirits)—the warehousing receipt could be returned to head quarters to be recorded in the bond book and then forwarded to the distiller.

Under the arrangement proposed, the officer would necessarily visit distilleries much more frequently than he does at present, and in such a case, should be in a position to deal with warehouses, if provided at the distillery premises. If secured satisfactorily and placed under Revenue and distiller's locks, deliveries could take place therefrom during his visits to distillery.

These appear to me the leading features of a simple system of accounting, adequate to the case of the West Indies. It affords the means of applying a reasonable check to the disposal of spirits in store. It does not provide for any leakage that may occur at any stage anterior to the proposed spirit receiver or charge vessel. It may be said that as up to this point, the spirit runs through secure pipes direct into the spirit receiver, or through a locked spirit safe, where one is provided, the security in that case is sufficient for all purposes. I am not much disposed to dispute this view, but in British Guiana, at present, regard is paid to the presumed produce from attenuation, so as to have some close estimate of the return to be expected from a certain known quantity of wort set up at a known density, and removed to the still at a certain density after attenuation. The knowledge that a certain quantity of spirits should be produced from a definite quantity of wash would be invaluable to a distiller in regard to the safety of his own property. He would then have a certain important control of his operative distiller instead of being, as he is at present, within certain limits, in the hands of his servants. Besides, I found in many places (Jamaica for example) that a record of the first and last gravities is kept, but that no use is made of it as a check on the produce from still. Where this arrangement is adopted merely as a check, and not as a charge, it would be necessary, as in British Guiana, to provide a book in which to show for each fermenting vessel, the temperatures and the densities of the wort set up before fermentation has commenced, and when it is delivered, as fermented wash, for distillation, in something like the following form:—

[illegible]

Distillation is never carried on into Sunday. The account suggested would admit of the application of a check at the end of each week, by means of the quantities distilled, considered at average gravities, and including the rum produced, and the impure spirit remaining. This might be effected, through a return, as in British Guiana, to head quarters, for examination by a competent officer or in any other way suitable to the Colony. Any serious deviation from a normal produce would necessitate investigation and possibly closer survey.

2. WORK AROUND THE PROBLEM.

In certain of the West Indies, Beaumé's Saccharometer is the favourite instrument for ascertaining the gravities of sugar solutions. The setting up gravities are usually from 9 to 10 and 13 Beaumé. These figures, converted into gravity as represented by Bates, the only Saccharometer recognised in this country, correspond to, speaking in round numbers, 64°, 71°, and 92°. The instrument in use is adjusted to a certain standard of temperature, calculated to suit, probably, the normal temperature of the locality, but it is seldom accompanied by a thermometer to try the temperature of the liquor in which it is used, to ascertain if it corresponds with the standard of adjustment. I did not meet with a table of corrections and adjustments for application in case of deviations from the standard temperature. I was struck with the fact that wash obtained from worts set up apparently at the same gravities in different distilleries did not agree in taste, some being very sweet, whilst others were still sweet but less so, and a small proportion represented the taste of wash, attenuated so far as to give the impression that fermentation left little of any sweet intact. The careless way in which, in many places, wort is prepared and set up without regard to temperature, either at start or at finish, might, to some extent, account for these differences, but it could scarcely cover the whole ground. Referring to Dr. Theophrastus's Dictionary on Beaumé's Hydrometer, I am informed that, notwithstanding the very definite directions given for graduating the scale, it appears the instrument makers have departed from these directions, for in 1891, Professor C. J. Chandler read a paper before the National Academy of Science at Philadelphia, in which he states he has found twenty-three different scales for the hydrometer, for liquids heavier than water, no one of which can be said to be correct. Apparently, therefore, the instrument in use may vary with each maker, and if this be a fair representation of the case, it seems advisable that these distillers should secure for use such an instrument as Bates' Saccharometer for the accuracy of which there is some guarantee. (See Appendix I.)

I observe that the setting up gravity in the West Indies is much higher than in this country, even where molasses are used. With high setting up gravities, there is the risk of incomplete fermentation. (See paragraph 5 on page 80.)

Capacity of Caves

The diagonal rod is exclusively used in the West Indies, outside of Trinidad, for ascertaining the capacities of casks. It is used also in many places to ascertain the quantity in a cask only partially filled. These ascertainment are accurate for a certain figure of cask. They are incorrect when deviations from that figure occur, either

towards a higher or a more depressed bilge. That the incorrect results are serious, varying as they do from one to three gallons on hogheads, and from one to eight on puncheons, may be seen from figures as to puncheons that represent actual results of consignments received:—

Allison Estate, St. Thomas.			Hillside Estate, Clarendon.			Bag Estate, Clarendon.			Ewing's Caymans, St. Catherine.		
Mark.	Reck. Gauge.	Warehouse Gauge.	Mark.	Reck. Gauge.	Warehouse Gauge.	Mark.	Reck. Gauge.	Warehouse Gauge.	Mark.	Reck. Gauge.	Warehouse Gauge.
C. R.	110	109		113	117	D.L.	114	110	M. L.V.	112	112
	112	109		115	112		114	108		107	102
	112	109	Perrin Estate, Clarendon.				114	108		106	116
	113	111					113	109		114	113
	115	114	P.	101	111		110	113		111	111
	115	108		109	110		113	109		116	112
Cherry Garden Estate, St. Catherine.	115	112		109	110		117	112		112	113
	115	113		110	110		117	118		114	112
	112	110		112	111		117	113		112	112
	113	114		114	111		112	113		111	111
				108	110		112	113		111	111
				107	110		113	109			
E.A.	114	116	Appleton Estate, St. Elizabeth.				118	115	R.R.	113	112
	118	117		110	113		119	112		108	109
	111	111								112	114
	114	114								112	112
	116	114								112	113
	116	114	D. BW R.	113	112		117	114		110	110
Hillside Estate, Clarendon.	113	113		116	115		118	115		110	114
	112	112		113	113		114	112	S.E. W.D.	110	111
	114	115		115	116		113	112		108	111
				112	113		113	114		110	111
				116	116		115	112		114	112
				110	110		119	119		114	108
C. P.	121	120	Bag Estate, Clarendon.			N. E.S.	114	110		119	109
	113	113					117	116	111	111	
	112	114					114	114	109	109	
	114	115					107	109	109	108	
	113	113	EMR.	113	110		118	116	109	109	
	115	115		112	108		115	114	108	110	
	111	113		114	109	111	110				
	113	114		113	108	111	110				

Difference of 5 Gallons and over between the Diagonal and Calliper Gauges of Casks of Rum received into the Rum Warehouse, Kingston, 1902.

Name of Bunde.	Parish.	Mark.	No.	Diagonal gallons.	Calliper gallons.	Difference.
Albion	St. Thomas	C A.	223	114	108	6
			228	117	109	8
			232	119	113	6
			235	120	115	5
			238	115	108	7
			244	113	105	8
			245	122	115	7
			254	119	112	7
			262	120	115	5
			265	110	105	5
			295	112	107	5
			296	121	116	5
			298	119	112	7
			302	113	108	5
			307	116	110	6
			308	117	112	5
			309	122	114	8
			310	115	110	5
			311	112	107	5
			313	118	113	5
			314	113	107	6
			316	118	113	5
			316	118	113	5
			317	114	107	7
			319	112	105	7
			322	119	112	7
	St. Catherine	S E.				

In British Guiana, and also in Trinidad, capacities of casks are ascertained by weight. The operation is simple and familiar, and it is not to be expected that any difficulty should arise in learning it, such as clings to the use of Callipers, which require lengthened experience and great care in face of the many adjustments to be taken into consideration. It is certain that serious difficulties stand in the way of training, at least coloured people, to understand Calliper work that do not attach to the commonplace operation of weighing. The ordinary beam and scales, where a steelyard is not already in use on the plantation, should, with necessary weights, meet all requirements, and their introduction would mean accurate results and a saving of loss to the distillers, or to their customers, which is very considerable. In the event of the adoption of weight it would be necessary to provide a book which is called, in this country, a weighing book, merely to record the weights, indications, and the corresponding capacities. (Copy of proposed form.)

Some of the islands are, it may be said, too small to provide for such supervision. This may be so, and probably is, but there can be no reason why a group of islands should not provide this spur to increased efficiency.

The head of a department, having charge of Excise Revenue, should certainly be a man who has had practical experience of what he is expected to control. Without such experience, a man cannot control, or win the respect of his subordinates, and a lack of practical experience may lead him into concessions and indulgences to planters and others which no man of experience, who could see through and round the matter, would ever dream of giving.

DRAFTING OF EXCISE ORDINANCES.

It seems to me that there is much in certain ordinances prepared in the West Indies to show the need of revision by some competent authority before they finally pass the Colony legislature. In recommending this, I am only accentuating the reference already made to the inconvenience of control where the controller is without practical experience of what he is expected to control. As an example of the want of this experience, take Ordinance No. 19, of 1888, for Dominica, and the regulations made by the Governor.

- (a) Under the heading "wash set up and spirit distilled," there occur "molasses taken into distillery in gallons."
- (b) The distiller is required to show in the stock book "the molasses taken into distillery in gallons," but a knowledge of the quantity without density or specific gravity or some index of value, is useless.
- (c) The distiller is required to enter in the stock book "the wash set up in gallons," a requirement which is absolutely useless without the original gravity of the wort, and the gravity of the wash after attenuation.

See also Montserrat Ordinance No. 10, of 1889, for similar blunders.

Coming to a later period and taking Ordinance No. 19, of 1892, for Trinidad, no man possessing practical experience of excise matters would give the following definition of "Wort." "Wort means wash prepared for distillation before fermentation commences," and then follows a definition of "Wash," which says:—"Wash means wash prepared for distillation after fermentation has commenced." "Wort" and "Wash" are not convertible terms, and it is difficult to reconcile these definitions. The definition of "spirits" is, I frankly confess, beyond my comprehension. As a sample or two out of a number, take for instance, Section 36 of the Ordinance commencing at the seventh line, "and also of all spirits removed from the distillery within such month, with the number and date of the permit for such removal and (with the number and date) of the strength or proof of such spirits," &c.—the parenthesis is mine—the number and date of the strength or proof mean an absurdity. Take Section 59, "No licensed retailer shall have or keep in bottles upon his premises at any one time a greater number than 1,200 reported quart bottles or the equivalent thereof of rum." I give it up. Sections 19, 22, 23 and 27 of first Schedule would not have been drafted as they stand by any officer of experience. The Ordinance is full of these crudities. The drafting of this Ordinance is in striking contrast to No. 3 licensing Ordinance, of 1902, prepared by one who is possessed of the training that practical experience alone can give.

I readily grant that the gentlemen who had to draft these Ordinances did the best they could in the circumstances, and they deserve the credit that should be given to men attempting the impossible. In my opinion, it would be well in future, in cases in which an excise spirit Ordinance is prepared, that it should be referred to the Chief Inspector in Somerset House, and to the Solicitor there, for revision.

The Trinidad Ordinance stands in need of revision.

PRINTED INSTRUCTIONS TO OFFICERS FOR THEIR GUIDANCE.

Outside two or three places, I could not discover that instructions, that is, systematic instructions, had been prepared for Excise Officers relating to all Excise sources of revenue. And they should be prepared by the most experienced officer the Colony can lay hands on. It is easy to point to instructions in print that must help rather to confuse and hinder an officer than to guide and help him to a clearer understanding of what he is expected to do. In distilleries for instance, instructions should follow the progress of operations from first to last, and illumine the officer's pathway so as to make it clear to him what is taking place at each point along the

line, and what he can and should do himself in the interests of the revenue. Concrete directions are much more appreciated by intelligent officers than mere abstract instructions that skim the surface. But these again can only be prepared by men of experience who have travelled the same path and are competent to show the way to others.

ROM ALLOWED DUTY FREE FOR DOMESTIC USE.

The practice of giving rum duty free to distillers is still continued in certain islands, and the new Ordinance for Antigua commences the practice for the first time there. It is said that the indulgence is connected with drams for the men employed; that this is not so in one case I know, because the recipient requested authority to dispose of the rum to spirit retailers. The practice is partial in its application as it affects only two or three islands, and should, I think, be given up. No duty free spirit is now given for drams to distillery men in this country.

MINIMUM QUANTITY FOR DELIVERY FROM SPIRIT STORE.

Jamaica.—40 gallons.
British Guiana.—25 gallons.
Trinidad.—24 gallons.
Grenada.—25 gallons.
St. Vincent.—25 gallons.
Barbados.—30 gallons.
Dominica.—10 gallons.
Montserrat.—50 gallons.
Antigua.—25 gallons.
St. Kitts.—It does not appear that any limit is fixed.

I am unable to find anything exceptional in the case of these Colonies to call for such varying limits of quantities. Apparently a minimum limit of 20 gallons should meet all cases. In this country nine gallons is the corresponding limit. This limit may possibly be too low for these Colonies.

VARIOUS AMOUNTS OF STILL LICENCES.

Jamaica.—£5.
British Guiana.—£10.
Trinidad.—£10.
Grenada.—(£1 for each 25 gallon of still capacity.)
St. Vincent.—(£1 for each 25 gallon of still capacity.)
Barbados.—£30.
St. Lucia.—£50.
Dominica.—£25.
Montserrat.—£5.
Antigua.—£1.
St. Kitts.—(Apparently none.)

It is rather remarkable that excepting Antigua and Montserrat, the highest licences should be in the smallest places. Until recently, there was only one distillery in St. Lucia. There was, therefore, no necessity for a stiff barrier against incomers. There does not appear to be any principle underlying these amounts—why there should be no charge at all in St. Kitts I cannot explain. At all events, I can find in the Blue Book no record of a Still Licence. In this country the Licence is £10.

RUNNING CASKS.

A complaint was made that casks are not allowed to be placed, one above another in spirit store. But there is no objection provided the casks can be examined for leakage, which is as much to the advantage of the distiller as to the revenue. And in order that no hindrance should be placed in the way of such economy of storage, I suggest that the particulars required on the heads of casks be restricted to one head only.

SECURITY OF SPIRIT STORES, WAREHOUSES, LOCKS, COCKS, FASTENINGS, STILLS, AND VESSELS.

The arrangements for security at distilleries and warehouses in this country are much more definite and complete than such as are called for in these Colonies. It

is almost needless to say that they cost much more to provide. I mention this by way of comparison merely and not with a view to find any fault with those provided in the Colonies, so far as they go.

A WORD TO DISTILLERS.

1st. Excluding British Guiana and Trinidad—it must be said that cleanliness in the fermenting room does not receive much attention. There are degrees of want of cleanliness, but it cannot be disputed that a healthy vinous fermentation is not promoted by the presence of dirt or the germs attending it. That article may be valuable in its own place, but the fermenting room is not that place.

2nd. In certain places, fermentation is carried on in close covered vessels. Distillers, at least in this country, have long since recognized that access to pure air is beneficial to fermentation, and unless wash is to stand exposed for a considerable period after fermentation has ceased, it is not thought necessary to cover the fermenting vessel.

3rd. When dunder and skimmings are used mixed with molasses, it appears to me that no satisfactory precautions are taken to ensure constant proportions of the several materials in each setting up. The density or specific gravity, of the molasses should always be an element in the case, and if not, the resulting mixture is one of haphazard and not of exact proportions.

4th. A saccharometer, adjusted to a certain standard temperature, is used, but a thermometer is seldom provided to see that the temperature of the wort or wash is in complete agreement with the heat standard. This is important as it was found in certain places in my own experience that the temperature of wort was 10° under the standard, and even if the two were the same, the liquor during fermentation is known to rise in temperature more than 10°. It is important, therefore, to be in a position to know the temperature at both points, so that, if necessary, the proper correction may be applied to the gravities. A table of corrections for heat always accompanies Bates' Saccharometer in use in this country.

5th. The distillers in this country prepare worts of a gravity of from 45° to 55° Bates, or, say—from 6° to 8° Beaumé. But in the West Indies, the gravity at which worts are set up ranges from 9 to 13 Beaumé, or, say, 64 to 92 Bates. Similar high gravities were discovered not to give as good results in this country, and have been discarded for lower. It would be convenient to use in the West Indies a Saccharometer of recognised accuracy, as in that case, it would be easy to compare produce-results obtained at different distilleries with advantage to all concerned.

I have no hesitation in saying that in a great many cases in the Islands there was undoubted evidence of unconverted sweet in the wash ready for the still.

6th. All rum is disposed of when it is new and therefore really raw spirit. There is not as a general rule any old rum at more than a very few distilleries in the islands. I never tasted any I could pronounce first class. The islands are famed for the various kinds of fruit they produce. I saw no evidence of any attempt to use any of this fruit in connection with wort fermentation so as to endeavour to improve the quality and value of rum for the English and other markets, and by this means to extend the range of custom. Distillers in this country have improved their spirit by filling it into empty sherry wine casks which are then allowed to stand some time in warehouse. I cannot find that the West Indies are making any effort in any direction to improve the quality of rum. And in face of the fact that much of the rum consumed in the islands consists of this raw, fiery spirit, it is not matter for surprise that whisky, from this and other countries, makes such headway, notwithstanding that it has to *overleap* a strong barrier of protective duties. It is not too much to say that the drinking of rum in the Colonies would cease altogether if the imported article were admissible at the internal rum duty. This I attribute to its newness or want of age and character.

7th. There is a very general complaint abroad in the islands, that it is impossible to get cool enough water for condensation so as to distil rum at a sufficiently low temperature. In certain cases the distillate comes over above 100° F. Ice is very cheap in these islands and in British Guiana, if the distillery were, as usually it is not, near the source of supply. Whether some cheap freezing mixture could be applied by means of a jacket round the last few feet of the worm after it has left the condenser, is a matter that may merit attention. I throw this out as a hint without any scientific or practical authority.

8th. I am not in a position to offer, although frequently asked, any advice by which to expedite the process of producing spirits in Colonies working by the slow process of fermentation. It is not at all difficult to hasten fermentation, if one could be satisfied that the increase in output would not be at the expense of quality. Once the source of the flavour characteristic of rum is discovered (and this important subject should occupy the serious attention of the Government Analysts), it will then be possible to think of what may be done with safety. My own impression is, that the slow process has much to do with the flavour and quality of rum, and I have a difficulty in attributing these, as some do, to the better supply of water, &c. But all this should be decided, and I have no doubt will be, by chemical analysis. And I should say for the scientific staff I have met in the islands, including British Guiana, that I am gratified to be able to testify to their devotion to the interests of these Colonies and to the strength of their desire to do whatever is possible to benefit the people. The cane and other experiments I have seen carried out, not in botanical gardens alone, but in the fields here, there, and in so many places, not in small patches but in considerable areas, struck me forcibly as evidence of a great scientific work which is in course of being accomplished for these Colonies.

9th. The use of colouring matter has been and still remains a source of some trouble in the West Indies. The first and most serious difficulty is connected with:—

- (a) Caramelisation of the sugar. In any case in ordinary practice and outside the laboratory, it is impossible to secure pure caramel. A certain percentage of unconverted sugar, more or less, remains, and if the process be pushed further the probability is that the article will be burned and rendered useless. I am not quite satisfied that care is taken to use pure sugar for the purpose, and to use successively, the same kind and quality of sugar. In some cases I found molasses in use.
- (b) Given the use of a pure sugar and satisfactory caramelisation, it is difficult to think that there should be any sediment in the rum coloured which should affect the price in London. Care is necessary, however, in making up the caramel with rum, to fit it for use, to allow time for the sediment to fall to the bottom of the vessel leaving a clear liquid above. To guard against disturbing the sediment, it may be well to place the drawing off tap in the cask a few inches above the bottom. Whether the clarifying process could be assisted, so as to ensure completeness, is a question for the laboratory.
- (c) It may be well before sending coloured rum to, say, the London market, to dilute a small sample of the spirit with water, so as to bring it down to something like proof. Should no deposit, or cloudiness, appear after, say, 24 hours, the probability is that the spirit will pass scrutiny here.

VIRGIN ISLANDS.

No papers have as yet reached me from the Commissioner.

When these papers reach me I will send in my report affecting them.

I have, &c.,
J. STEELE

To the Right Honourable

Joseph Chamberlain, M.P.,

Secretary of State for the Colonies.

(Received from Mr. Steele, November 11, 1902.)

VIRGIN ISLANDS.

There are 8 sugar estates in these Islands, each in possession of a still. The capacity of the stills varies from 100 to 150 gallons. Each is capable of producing from 25 to 35 gallons of spirits daily.

Six stills appear to have been at work during last crop season, and 5,750 gallons of rum at 24 over-proof, were produced, or 7,130 proof gallons. The whole of this

spirit was consumed in the Islands, and if to this be added 3,820 gallons of spirits of various descriptions imported, it will be seen that the consumption per head of population (4,908) exceeds 2 gallons.

There is no internal rum duty, and imported rum is only charged at the rate of 1s. 3d. per gallon. Indeed, all spirits imported, as the following list will show, are charged at low rates:—

Brandy, per gallon	...	...	...	2s.	0d.
Gin, per gallon	...	...	...	1s.	3d.
Whisky, per gallon	...	...	...	2s.	0d.
All other Spirits	...	...	...	2s.	0d.

From these rates it may be inferred, that spirits may be purchased retail at rates varying from 6d. to 11d. per reputed quart bottle. It is thus not a matter for surprise that the consumption per head is in excess of that of any other Island in the West Indies, or that the figure of consumption is in excess of corresponding results in temperate climates.

That spirits should be one of the cheapest articles accessible in these Islands, where practically every article of household consumption, such as bread, flour, butter, cheese, fish, ham, &c., &c., imported from abroad, is charged custom's duty is a subject that appears to call for notice.

Under Ordinance, No. 6, of 1900, a licence is required for sale of liquors in the house named in the licence, for which a payment of £4 a year is required. A similar licence may be taken for an annual payment of £2, permitting sale in quantities not less than a reputed pint, for consumption elsewhere than on the licensed premises. This £2 licence each distiller must hold. This is the only revenue (amounting annually to, say, £12) secured from rum produced in the Islands. Considering the protection afforded to the Island producers by the duty on the imported Article, it seems clear that the arrangement is one which enables them to pocket at least £400 a year on their present output, at the expense of the consuming community.

Although the distillers are said to be nearly all coloured people, it is difficult to understand why a certain revenue should not be secured from rum produced in the Islands. It is not usual to require a distiller to take out a licence for selling the Article which he manufactures. A still licence is usually exacted, and in addition a certain duty per proof gallon. A reasonable still licence would be better than the present arrangement. This, in conjunction with a small duty on rum, say, 2s. 6d. a proof gallon, should produce from £500 to £600 annually without much increase in the price to the consumer.

Of the eight stills, two are not more than a mile from the Revenue Officer, one is three and another four miles; one is six, one seven, and two eight miles each. I refer to these to show, that in presence of a reasonable arrangement for securing the rum duty in such a place, the additional cost would be small comparatively.

The land on which sugar is produced is seldom cultivated by the owners themselves. It is usually let out to contractors or peasant proprietors, on the metayer system, who pay the owners in produce, usually one-third of the rum and sugar produced. The field hands, and the mill and boiling hands, are also paid in sugar.

In certain cases at least the arrangements for crushing the cane must be of a somewhat primitive description, as it is said that several of the boiling houses are covered with cane trash or guinea grass.

The surplus sugar is exported to the neighbouring Danish Islands of St. Thomas.

For a very interesting letter as to these Islands see Appendix G.

J. STEELE.

November 10, 1902.

APPENDICES.

A.

The underlying principle of the excise system in this island is mutuality of interest. The Legislature goes on the assumption that the owner of a distillery is interested in the protection of his produce, and treats him as a partner throughout.

In his interest a minimum limit (300 gallons) to the capacity of a still is fixed, and there is provision for registering and licensing of each one used. The design of these provisions is to check illicit distillation, and it will be admitted that the restrictions have been successful in their aim.

Some of the other salient provisions of the excise law are :—The requirement of an approved registered store or estates' warehouse at each distillery under registration and Government inspection. These stores are under the control of the manager of the distillery, and all rum, immediately on being manufactured, must be deposited therein and cannot be removed except under a permit. On three or four distilleries, manufacturing for local consumption, rum is kept in these stores from year to year, but in the majority of cases the stores are only used as temporary places of deposit until the rum can be sent for shipment or to warehouse.

High-wines have to be conveyed through a closed metal pipe to the retort for redistillation. The discharge cock of the high-wine cask must be fastened in a particular manner. The can pit and worm end of the still must be secured as directed by the Department. And a stock book of all rum manufactured must be kept in a specified manner.

All rum made, remains a debt upon the estate until discharged by export certificate or by warehousing certificate, or by special authority of the Revenue Commissioner, and under special authority, rum made and accounted for is allowed to be redistilled.

The Department relies on periodical inspection of distilleries, and quarterly returns, on oath, of the rum manufactured and disposed of, for seeing that these regulations are complied with.

The strength of rum manufactured is not recorded, and the record of rum made is absolutely in the hands of the distiller.

If the quantity manufactured is faithfully recorded and deposited in the registered store, the subsequent disposal is fairly well traced.

The rum cannot be removed from the registered store without a permit. It can only be removed in full casks, unless duty paid, and if taken to a warehouse, it passes directly into Government control, and any excess deficiency in quantity or strength must be duty paid; if sent to a wharf for shipment it is subject to inspection by the Inspecting Officer, and duty demanded on any unexplained deficiency disclosed at such inspection.

All rum for consumption may be required to pass through a warehouse, but this is not insisted on, and a percentage of that consumed is sold direct from the estate, being previously duty paid, and the minimum quantity which may be so removed is forty gallons.

Warehouses under Government control are established at convenient centres, and rum is removed thither under permit, and the warehousing certificate discharges the estate from liability.

Clearing rum for consumption ex warehouse, or for exportation or for removal to another warehouse, the blending, racking, and bottling, of rum, are all conducted under close excise supervision on methods that closely approximate those in operation in England.

Rum sent to a wharf for shipment is only allowed to remain there three months, when, if not shipped, it must be conveyed to warehouse. Besides periodical inspection by the Inspecting Officer, a proportion of the rum turned out for shipment is gauged and proved by the Customs' Officers, and duty demanded on any excess deficiency.

Authority of law is provided for the recovery, by the owner of rum, of duty paid on deficiencies occurring at wharf or on a coastwise vessel, from the wharfinger or vessel, as the case may be.

At many centres special export warehouses are provided under joint lock of wharfinger and Crown for deposit of rum for exportation, and rum, thus deposited, is gauged and tested on receipt, and remains under Crown lock until finally exported. A large portion of the laws is devoted to the machinery for recovering penalties and punishing crimes and offences, but these have little bearing on the matter under enquiry.

The weak points of the system would seem to be :—

- (a) The dependence on the distiller for the starting point.
- (b) Accounts being kept in bulk gallons instead of proof.
- (c) Faulty distillery arrangements allowing of pilfering.

Forty years ago the excise on rum was 2s. 9d. per bulk gallon, and the value about 2s. 6d. To-day the excise is 6s. per proof gallon, and the value from 1s. 4d. to 1s. 6d. per bulk gallon of an average strength exceeding 35 per cent. O.P., and it has been as low as 10d. Thus, what was a fairly equal interest between the owner and the Government forty years ago, is now a very one-sided matter, and the partner with the least interest is the one vested with the largest share of control.

* For remedy the following is suggested, viz. :—the Government to certificate the distiller as to character and pay so much of his salary as the proposed bounty covers.

With a certificated distiller, in Government pay, accounts in proof gallons would be a matter of easy accomplishment.

Much can be done to remedy defects in most, if not all the distilleries. By a system of pumps, locked rats and can pits accessible only to the distiller, such as have been adopted at Holland, in St. Elizabeth, and Moneymsk, in Clarendon, access to the spirit can be limited to the distiller alone until the quantity and strength is ascertained and recorded in the still-house book, and the rum deposited in the registered store. If the distiller be a certificated and trustworthy man, in Government pay, the system will be as good as is practicable under the circumstances. Continuous excise supervision would be much too costly to be thought of.

Special attention is required to be given to the securing of high-wine casks, as it is believed that the high-wines are subject to much petty pilfering.

A. H. MILES.

March 11, 1902.

B.

(No. 161/1,210.)

SIR,

Inspector-General's Office, Kingston, April 21, 1902.

I HAVE the honour to forward, herewith, the return of cases made by the Police during the two years ended 31st March, 1902 of "Illegal Possession of Rum," asked for by you in your letter, No. 312, of the 7th instant.

2. The Inspector of Police of St. James reports that he is unable to give the quantity and strength of the rum seized, but that the quantity in each case was small, and the strength was tested by the Collector of Taxes; and the Inspector of Westmoreland is unable to give the strength of the rum in most of the cases prosecuted in that parish.

The Honourable,

The Collector-General,
Kingston.

I have, &c.,

E. F. WRIGHT,

Inspector-General of Police.

JAMAICA CONSTABULARY.

RETURN OF CONVICTIONS obtained by the Police in cases of "Illegal Possession of Rum" prosecuted during the two years ended 31st March, 1902.

Parish.	Date of Detection.	Quantity of Rum Seized.	Strength of Rum Seized.	Locality in which Seizure was made.
Kingston ...	Nil ...	Nil ...	Nil ...	Nil.
St. Andrew ...	Nil ...	Nil ...	Nil ...	Nil.
St. Thomas ...	18th May, 1900 ...	3 quarts and $\frac{1}{4}$ pint	24 proof ...	FOOT HILL.
	4th April, 1901 ...	5 gills ...	26 proof ...	LYRROW.
	3rd May, 1901 ...	24 gills ...	20 proof ...	DURFRIES.
	15th May, 1901 ...	5 gills ...	18 proof ...	JOHN'S TOWN.

* NOTE.—I am wholly opposed to any such arrangement as that proposed.

Parish.	Date of Distillation.	Quantity of Rum Sold.	Strength of Rum Sold.	Locality in which Rum was made.
St. Thomas	15th May, 1901	7 gills	20 proof	John's Town.
	16th May, 1901	7 gills	20 proof	John's Town.
	6th August, 1901	17 gills	21 proof	Albion.
	7th March, 1901	10 gills	18 proof	Lynuma.
	Nil	Nil	Nil	Nil.
Portland	Nil	Nil	Nil	Nil.
St. Mary	Nil	Nil	Nil	Nil.
St. Ann	Nil	Nil	Nil	Nil.
Tredaway	10th July, 1900	2½ gallons	18 proof	Lottery Estate, near Falmouth.
	11th August, 1900	2 gallons	23 proof	Troy.
	12th April, 1901	4½ quarts	18 proof	Long Pond.
	27th April, 1901	4 quarts	19 proof	Clerk's Town.
	3rd May, 1901	4½ quarts	19 proof	Clerk's Town.
	11th May, 1901	2 quarts	19 proof	Hampshire.
	16th May, 1901	1 gallon	19 proof	Georgia Estate.
	21st May, 1901	2 quarts	19 proof	Rio Bonito.
	22nd May, 1901	1 quart	20 proof	William Valley.
	12th July, 1901	1 quart	19 proof	Ducousa.
	22nd June, 1901	2 quarts	22 proof	Coramby Mountains.
	26th July, 1901	2 gallons, 1 quart	19 proof	Samuel's Prospect.
	21st July, 1901	1 quart	19 proof	Samuel's Prospect.
	April, 1900	...	...	Montejo Bay.
	April, 1900	...	...	Fairfield.
	April, 1900	...	...	...
	July, 1900	...	...	Montpelier.
Haverer	8th May, 1901	...	...	Fairfield.
	22nd May, 1901	...	...	Content.
	28th May, 1900	1 pint	18 proof	Kingsdale.
	26th May, 1900	1 quart 1 pint	18 proof	Kingsdale.
	17th July, 1900	4 gallons	19 proof	Sandy Bay.
Westmoreland	27th February, 1901	1 quart	18 proof	Green Island.
	24th July, 1901	2 quarts	26 proof	Green Island.
	30th December, 1901	2 quarts	18 proof	Kingsdale.
	5th March, 1902	3 quarts	19 proof	Green Island.
	24th March, 1900	2 bottles	...	Carver's Estate.
	3rd April, 1900	4 quarts	...	Morgan's Bridge.
	9th April, 1900	1 pint	...	Retreat.
	7th April, 1900	1 bottle	...	Morgan's Bridge.
	...	...	...	...
	...	...	...	...

Parish.	Date of Detection.	Quantity of Run Seized.	Strength of Run Seized.	Locality in which Seizure was made.
Westmoreland	13th April, 1900	1 gill	...	Mount Eagle Estate.
	14th May, 1901	$\frac{1}{2}$ pint	...	Paul Island.
	19th May, 1900	1 quart	...	Retriever.
	29th May, 1900	1 quart	...	Town Head.
	19th June, 1900	2½ quarts	...	George's Plain Estate.
	13th May, 1900	3 quarts	...	Fonsabelle Estate.
	9th December, 1900	2 pints	...	Burns Savannah.
	22nd December, 1900	3 pints	...	Mint.
	18th May, 1900	4 quarts	...	Morgan's Bridge.
	2nd January, 1901	4 quarts	...	Mount Eagle Estate.
	27th January, 1901	2 quarts	...	Moss Muir Estate.
	7th March, 1901	3 quarts	...	Mint Road.
	7th March, 1901	3 quarts	...	Mint Road.
	18th March, 1901	4 quarts	...	Fonsabelle Estate.
	6th April, 1901	1 gill	...	Strathbogie.
	24th April, 1901	3 quarts	...	Pallardsfield.
	26th April, 1901	1 bottle	21 proof ...	Savannah.
	11th May, 1901	3 quarts	...	Savannah Harbour.
	8th May, 1901	2½ quarts	...	Morgan's Bridge.
	14th May, 1901	4 quarts	...	Paul Island.
	14th May, 1901	1 pint	...	Paul Island.
	1st June, 1901	4 gallons	...	Williamsfield.
	24th August, 1901	1 pint	...	Morgan's Bridge.
	10th August, 1901	2 pints	...	Genova.
	15th January, 1902	2 gallons	...	Mount Eagle Estate.
	26th January, 1902	1 quart	...	Grange.
	23rd February, 1902	1 pint	20 proof ...	Moss Muir Estate.
	20th February, 1902	4½ quarts	21 proof ...	Meylersfield.
	22nd February, 1902	5 quarts	21 proof ...	Whithorne.
	22nd February, 1902	1 pint	20 proof ...	New Hope Estate.
	22nd March, 1902	3 quarts	23 proof ...	Whithorne.
St. Elizabeth	Nil	Nil	Nil	Nil.
	8th June, 1901	9 quarts	18 proof ...	Kendal Railway Station.
Manchester	12th May, 1900	2 pints	21 proof ...	Alley.
	14th May, 1900	3 quarts	19 proof ...	Alley.
	3rd June, 1900	17 bottles	19 proof ...	May Pen.
	5th June, 1900	1 quart	21 proof ...	May Pen.

Parish.	Date of Distillation.	Quantity of Rum Seized.	Strength of Rum Seized.	Locality in which Seized was made.
Clarendon	18th June, 1900 ...	1½ quarts	18 proof ...	Alley.
	10th June, 1900 ...	1 pint ...	23 proof ...	May Pen.
	23rd February, 1901 ...	4½ quarts...	19 proof ...	Hayes.
	12th March, 1901 ...	2 pints ...	19 proof ...	Alley.
	12th March, 1901 ...	2½ quarts	21 proof ...	Alley.
	29th March, 1901 ...	1 quart ...	18 proof ...	Hayes.
	27th March, 1901 ...	1 pint ...	21 proof ...	May Pen.
	12th April, 1901 ...	2 quarts ...	18 proof ...	Rock River.
	12th April, 1901 ...	2 quarts ...	18 proof ...	Rock River.
	12th April, 1901 ...	2 quarts ...	18 proof ...	Rock River.
	25th April, 1901 ...	1 quart ...	23 proof ...	May Pen.
	17th May, 1901 ...	4 quarts ...	21 proof ...	Alley.
	21st May, 1901 ...	2½ quarts	19 proof ...	Alley.
	29th June, 1901 ...	1 pint ...	21 proof ...	Alley.
	22th February, 1902 ...	1 pint ...	21 proof ...	Alley.
	15th February, 1902 ...	2 quarts ...	21 proof ...	Alley.
	8th March, 1902 ...	2 quarts ...	19 proof ...	Alley.
	16th February, 1902 ...	3 pints ...	20 proof ...	Alley.
	5th May, 1900 ...	1 quart and 1 pint	23 proof ...	Hayes.
St. Catherine	4th April, 1901 ...	1 pint ...	18 proof ...	Hayes.
	26th April, 1901 ...	4½ quarts	21 proof ...	Alley.
	16th May, 1900 ...	3 galls ...	17 proof ...	Lodges Estate.
	12th April, 1901 ...	3 galls, and 3 qts.	17 proof ...	Caymanas Estate.

Inspector-General's Office,
Kingston.
21st April, 1902.

R. P. WRIGHT,
Inspector-General of Police.

C.

PRELIMINARY ESTIMATE of cost on basis of discharging the Receiver at each Distillery twice a week.

St. Andrew 1 distillery. All that will be necessary will be additional mileage for the Inspector £12

St. Thomas 4 distilleries. If the officer next on rank to the Inspecting Officer were required to share the Inspection and a temporary clerk taken on during crop time the cost would be—

Additional mileage £65
Temporary clerk 30

95

St. Ann 3 distilleries. The officer next in rank at the Collectorate and Brown's Town could be required to share the travelling with the Inspecting Officers and their places filled by temporary officers. The expense would be—

Additional mileage	... ..	£90
Improvement to status of clerk at Brown's Town	... ..	40
Temporary clerk at St. Ann's Bay	... ..	30
Temporary clerk, Brown's Town	... ..	30
		190

Trelawney 26 distilleries. Seven of these are inspected from the Collectorate at Falmouth and 19 from Jackson Town. I would throw three more on to the Collectorate, and require the Treasury clerk to share the travelling, supplying his place by a temporary clerk at Jackson Town; two additional officers of a standing that would justify their employment in Inspection would be required. The expenses would be—

Two additional officers at Jackson Town at £140—	... ..	£280
Temporary clerk, Falmouth	... ..	30
Additional mileage	... ..	380
		690

St. James 18 distilleries. Another officer available for Inspection would be required in addition to utilizing the services of the Treasury clerk. The expenses would be—

One additional officer at	... ..	£140
Temporary clerk during crop	... ..	30
Extra mileage	... ..	300
		470

Hanover 15 distilleries. An additional Inspecting Officer would be required here, besides pressing the services of the Treasury clerk. The cost would be—

One additional officer	... ..	£140
Temporary clerk during crop	... ..	30
Extra mileage	... ..	460
		630

Westmoreland 21 distilleries. Same arrangement as in Hanover and St. James—costing—

One additional officer	... ..	£140
Temporary clerk	... ..	30
Extra mileage	... ..	250
		520

St. Elizabeth 4 distilleries. I would improve the status of the clerk in the Inspector's office, and require him to share the travelling, supplying his place by a temporary officer during crop. Expense—

Additional to clerk	... ..	£40
Temporary clerk	... ..	30
Extra travelling	... ..	200
		270

Clarendon 13 distilleries. Inspector Denbigh, Parnassus, and seven from the Collectorate. Put the Chapelton Office on the footing

suggested for Santa Cruz and provide temporary aid for Alley
Expense—

Temporary clerk, Collectorate	...	..	...	£30
Temporary clerk, Chapelton	...	...	...	30
Temporary clerk, Alley	...	...	...	30
Improved Status clerk at Chapelton	...	...	...	40
Extra travelling	...	...	...	140
				<u>270</u>

St. Catherine 5 distilleries. Let Treasury clerk take Caymanac.

Improve status of clerk at Luistead.				
Temporary clerk, Collectorate	...	...	...	£30
Improved status of clerk, Luistead	...	...	...	40
Extra travelling	...	...	...	130
				<u>200</u>
				<u>£3,347</u>

In these estimates I have provided for crop lasting seven months, for mileage at an average of 8d. a mile, and for the inspection being conducted from present centres. In many cases crop will be over in less than the time allotted, arrangements may be made with the Public Works Department, which already has to keep a large number of horsekind for its own purposes, for locomotion; and other and more suitable centres may be arranged. Subject to these considerations the estimate is as low as it can be.

A. H. Maza.

MONSTRERAT.

Q.—Quarterly Return under the "Bacon Duty Ordinance, 1857."

D.

Distillery on

Rate in the Parish of St.

Distiller.

SPIRITS OF BRAND.	DATE.		SUMMARY.
	Low Wine.	Gallons.	
SPIRITS OF BRAND.	Spirits.	Proof.	SPIRITS OF BRAND.
	Low Wine.	Gallons.	
	Spirits.	Proof.	
	Low Wine.	Gallons.	
SPIRITS OF BRAND.	Spirits.	Proof.	SPIRITS OF BRAND.
	Low Wine.	Gallons.	
	Spirits.	Proof.	
	Low Wine.	Gallons.	
SPIRITS OF BRAND.	Spirits.	Proof.	SPIRITS OF BRAND.
	Low Wine.	Gallons.	
	Spirits.	Proof.	
	Low Wine.	Gallons.	
SPIRITS OF BRAND.	Spirits.	Proof.	SPIRITS OF BRAND.
	Low Wine.	Gallons.	
	Spirits.	Proof.	
	Low Wine.	Gallons.	

I, _____, do solemnly and sincerely declare that the above statement is a just and true statement of the quantity of Spirits on hand on the above-named Distillery on the first day of _____ 18____, of the quantity and strength of Spirits distilled at the said distillery from the said first day of _____ 18____, to the _____ day of _____ 18____, of the quantity and strength of Spirits removed from the said distillery and of the quantity and strength of Spirits remaining in the said distillery on the _____ day of _____ 18____, and I make this solemn declaration conscientiously believing the same to be true.

Signed and declared before me
this _____ day of _____ 18____.

Treasurer.

Distiller.

[illegible]

RETURNS of Spirits manufactured by

at

 Distillery, in

 PARISH, in the Colony of Grenada for quarter

F.

SCHEDULE E (Section 41)

ending

 18

On hand at end of last quarter.	Proof Spirits.	Low Wine.	Males during the quarter.		Total to be accounted for.		Returned from Distillery.										On hand at end of quarter.	
							Redivided.					Allowed for domestic use.						
							Proof Spirits.	Low Wine.	Proof Spirits.	Low Wine.	Proof Spirits.	Low Wine.	Proof Spirits.	Low Wine.	Proof Spirits.	Low Wine.		
Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.			

Details of Spirits duty paid.

To whom sold.		Date of sale.	Date of removal from distillery.	No. of Packages.	No. of Tons.	Quantity.		Strength.

I,

 of my knowledge and belief,

 Declared before me this

 day of

 18

 J.P.

 Examined and found correct,

 Revenue Officer.

Mr. Romney to the Commissioner.

Sir,

Belmont, Tortola, August 22, 1902.

I HAVE the honour to acknowledge receipt of your communication of the 19th instant, covering enclosed paper from the Imperial Commissioner for West Indian Excise Revenue.

Leaving description of distillers for your personal delineation (whom I believe to be in each case native negroes), I will proceed with next query, viz.:—

Stills.—Pots of copper, wooden casks generally, worms of black tin (Pewter) and copper.

Retorts.—Unknown quantity.

Worm ends.—Terminate at side of worm tubs where rum runs into pails or pans, and generally filled into demijohns.

Rum stores.—None.

Delivery A/c and Stock Books.—Nil.

Periodical Returns.—Nil.

Description of Molasses.—All molasses from Musorodo sugar manufactured by open kettle process is alike, testing about 42 to 43, Cartier.

Density of Worts.—Unknown quantity. At the Cappelton Apple Bye's estate wash is set up to correspond with saccharine test of cane juice which varies from 10 to 13 Cartier, and fermented to 1 or 1½ Cartier when run into the Still.

Capacity of Rum Stills and Product.—As I have never visited any of the Estates in the Island, and am not acquainted with many of the owners, I cannot give any reliable information to capacity of Stills or quantity of rum made; the Still at Cappelton Apple Bye's is a copper pot of 100 Wine Gallons charging capacity with copper cap, goose neck, and outlying pipe with block tin worm, terminating outside of worm tub, where rum is collected in wooden pails, cooled, and filled into demijohns. Last year's product was about 150 Imperial Gallons, 50 per cent. of which was divided among contractors (about forty-two in all). Thirty-two thousand Gallons of Liquor (cane juice) was extracted; the field hands, mill and boiling house hands, are paid in sugar.

Boilers, mule drivers, and firemen, at the rate of one 5 lb. butter pan of sugar for every 300 Gallons of raw juice extracted from canes; mill gang, cane cutters, mule boys, &c., &c., one-half of the above—one-third of product is paid for reaping.

Properly speaking there are no estates in the Island. Several of the boiling houses are covered with cane trash or guinea grass. Outside of the Cappelton Apple Bye's Estate, the greater proportion of cane ground is furnished by outsiders (peasant proprietors) who pay the Estate one-third of sugar and rum produced, for manufacturing same. Estate land is worked by contractors on the meteray or half system, owners very rarely planting any canes themselves; a great proportion of sugar thus made is shipped to the neighbouring Danish Island of S. Thomas, and sold under the name of sling and new sugar, thus retarding accumulation of molasses. Thus about three-fifths of rum and sugar made in the Island finds its way into hands of peasants, i.e., three-fifths of residue after paying about one-third for labour.

During the last three or four years an agricultural spirit is springing up among the folks at our end of the Island (the West end), and in fine through the country generally but strictly confined to cane culture.

It would be premature and very unadvisable to meddle with existing Ordinances and Taxes in the Virgin Islands, but rather cultivate carefully and judiciously the present trend of Agricultural interest.

Tons of written or printed matter make no impression whatsoever on Quashie, Quakoo, or Quamina, the geographical conformation and smallness of the Island, entirely swept by sea breeze and spray, coupled with its isolation from the larger islands prevents the possibility of its even becoming a fruit-producing Island for other than local require-

ments or those of its immediate surroundings; many of the Virgin Islanders go to Santo Domingo and the neighbouring Island of S. Thomas. At the former Island they earn from fifty to seventy-five cents a day as labourers, at the latter Island \$12 to 13. a month as cargo-men on board of the German steamers. Those that remain are jack-of-all-trades; they plant, fish, burn coals, or traffic in boats between S. Thomas and S. Croix; they are what may be termed handy all-round men, possessing material to build up a healthy thriving population, and now that the Imperial Government has granted £500 per annum for Agricultural Instruction and Experiment, if wisely and judiciously handled it will very likely benefit the Islands; what is required here is to tackle the possible. There is not, to my knowledge, a single estate in the Island that is thoroughly arable, or wholly fruitful, whereas on the other hand there are some very fruitful and fertile spots that may be turned to very profitable account.

Limes can, and will, pay; unfortunately the pecuniary situation of the proprietors generally precludes the possibility of their planting anything that will not give an annual or semi-annual return, but I am morally convinced that if, say, 25 or 30 acres of land at the Experiment Station was planted in limes, that they would not only succeed famously, but that that factory, and another assisted one at the West End of the Island would by degrees lead on the people to follow suit, and that the material prosperity of the Island would be greatly advanced thereby.

Craving Your Honour's indulgence for any opinion herein contained that may not be in accordance with your views and begging to assure you of non-intention to friction-ise with other opinions,

His Honour
The Commissioner,
Road Town.

I have, &c.,
JOS. B. ROMNEY.

H

IMPORTS OF RUM.
RATES OF DUTY. ENTERED FOR HOME
CONSUMPTION. STOCKS. 1851 to 1901.

IMPORTS OF RUM.

IMPORTS OF RUM.					RATES OF
Year.	British West India Islands.	British Overseas.	Other Countries.	Total.	On Colonial.
	Proof Gallons.			Proof Gallons.	
1851	1,190,054		144,020	1,334,074	England, &c. 2d.; Scotland, &c. ; Ireland, 3s.
1852	1,041,663		475,000	1,516,663	
1853	1,011,507	3,094,202	496,004	4,501,713	England, &c. 2d.; Scotland, &c. ; Ireland, 3s. 6d.
1854	3,371,097	3,500,000	1,490,999	8,362,100	England, &c. 2d.; Scotland, &c. and &c. 4d.; Ireland, 3s. 6d. and &c. 4d.
1855	3,737,730	3,442,371	1,254,202	8,434,303	England, &c. 2d.; Scotland, &c. 4d. and &c. 4d.; Ireland, 3s. 6d. and &c. 4d.
1856	3,660,074	3,855,720	1,300,268	8,816,062	England and Scotland, &c. 2d.; Ireland, &c. 4d.
1857	3,304,503	3,337,749	700,109	7,342,361	England and Scotland, &c. 2d.; Ireland, &c. 4d.
1858	3,373,171	3,090,632	791,654	7,255,457	England and Scotland, &c. 2d.; Ireland, &c. 4d.
1859	3,400,772	3,002,102	1,164,712	7,567,586	England and Scotland, &c. 2d.; Ireland, &c. 4d. and &c. 4d.
1860	3,004,722	3,334,697	999,454	7,338,873	United Kingdom, &c. 2d.
	Proof Gallons.				United Kingdom, &c. 2d., &c. 2d., and &c. 2d.
1861	3,120,094	3,441,795	1,254,766	7,816,655	
1862	3,073,211	3,330,303	995,696	7,400,210	
1863	2,702,711	3,454,304	1,064,704	7,221,719	
1864	1,443,444	3,094,902	103,004	4,641,350	
1865	2,000,000	3,000,132	791,117	5,791,249	
1866	2,073,315	3,093,171	1,117,245	6,283,731	
1867	2,710,071	2,866,075	1,295,400	6,871,546	
1868	3,400,507	3,400,134	700,543	7,501,184	
1869	1,807,541	3,334,403	903,299	6,045,243	
1870	2,004,504	3,330,113	1,400,718	6,735,335	
1871	2,000,209	3,000,137	853,318	5,853,664	
1872	1,801,000	2,900,209	791,472	5,492,481	
1873	1,311,000	3,311,707	1,275,799	5,908,506	
1874	1,002,015	3,200,000	1,044,072	5,246,087	
1875	1,000,000	3,000,000	1,000,000	5,000,000	
1876	1,000,000	3,000,000	1,000,000	5,000,000	
1877	1,000,000	3,000,000	1,000,000	5,000,000	
1878	1,000,000	3,000,000	1,000,000	5,000,000	
1879	1,000,000	3,000,000	1,000,000	5,000,000	
1880	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1881	1,000,000	3,000,000	1,000,000	5,000,000	
1882	1,000,000	3,000,000	1,000,000	5,000,000	
1883	1,000,000	3,000,000	1,000,000	5,000,000	
1884	1,000,000	3,000,000	1,000,000	5,000,000	
1885	1,000,000	3,000,000	1,000,000	5,000,000	
1886	1,000,000	3,000,000	1,000,000	5,000,000	
1887	1,000,000	3,000,000	1,000,000	5,000,000	
1888	1,000,000	3,000,000	1,000,000	5,000,000	
1889	1,000,000	3,000,000	1,000,000	5,000,000	
1890	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1891	1,000,000	3,000,000	1,000,000	5,000,000	
1892	1,000,000	3,000,000	1,000,000	5,000,000	
1893	1,000,000	3,000,000	1,000,000	5,000,000	
1894	1,000,000	3,000,000	1,000,000	5,000,000	
1895	1,000,000	3,000,000	1,000,000	5,000,000	
1896	1,000,000	3,000,000	1,000,000	5,000,000	
1897	1,000,000	3,000,000	1,000,000	5,000,000	
1898	1,000,000	3,000,000	1,000,000	5,000,000	
1899	1,000,000	3,000,000	1,000,000	5,000,000	
1900	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1901	1,000,000	3,000,000	1,000,000	5,000,000	
1902	1,000,000	3,000,000	1,000,000	5,000,000	
1903	1,000,000	3,000,000	1,000,000	5,000,000	
1904	1,000,000	3,000,000	1,000,000	5,000,000	
1905	1,000,000	3,000,000	1,000,000	5,000,000	
1906	1,000,000	3,000,000	1,000,000	5,000,000	
1907	1,000,000	3,000,000	1,000,000	5,000,000	
1908	1,000,000	3,000,000	1,000,000	5,000,000	
1909	1,000,000	3,000,000	1,000,000	5,000,000	
1910	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1911	1,000,000	3,000,000	1,000,000	5,000,000	
1912	1,000,000	3,000,000	1,000,000	5,000,000	
1913	1,000,000	3,000,000	1,000,000	5,000,000	
1914	1,000,000	3,000,000	1,000,000	5,000,000	
1915	1,000,000	3,000,000	1,000,000	5,000,000	
1916	1,000,000	3,000,000	1,000,000	5,000,000	
1917	1,000,000	3,000,000	1,000,000	5,000,000	
1918	1,000,000	3,000,000	1,000,000	5,000,000	
1919	1,000,000	3,000,000	1,000,000	5,000,000	
1920	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1921	1,000,000	3,000,000	1,000,000	5,000,000	
1922	1,000,000	3,000,000	1,000,000	5,000,000	
1923	1,000,000	3,000,000	1,000,000	5,000,000	
1924	1,000,000	3,000,000	1,000,000	5,000,000	
1925	1,000,000	3,000,000	1,000,000	5,000,000	
1926	1,000,000	3,000,000	1,000,000	5,000,000	
1927	1,000,000	3,000,000	1,000,000	5,000,000	
1928	1,000,000	3,000,000	1,000,000	5,000,000	
1929	1,000,000	3,000,000	1,000,000	5,000,000	
1930	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1931	1,000,000	3,000,000	1,000,000	5,000,000	
1932	1,000,000	3,000,000	1,000,000	5,000,000	
1933	1,000,000	3,000,000	1,000,000	5,000,000	
1934	1,000,000	3,000,000	1,000,000	5,000,000	
1935	1,000,000	3,000,000	1,000,000	5,000,000	
1936	1,000,000	3,000,000	1,000,000	5,000,000	
1937	1,000,000	3,000,000	1,000,000	5,000,000	
1938	1,000,000	3,000,000	1,000,000	5,000,000	
1939	1,000,000	3,000,000	1,000,000	5,000,000	
1940	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1941	1,000,000	3,000,000	1,000,000	5,000,000	
1942	1,000,000	3,000,000	1,000,000	5,000,000	
1943	1,000,000	3,000,000	1,000,000	5,000,000	
1944	1,000,000	3,000,000	1,000,000	5,000,000	
1945	1,000,000	3,000,000	1,000,000	5,000,000	
1946	1,000,000	3,000,000	1,000,000	5,000,000	
1947	1,000,000	3,000,000	1,000,000	5,000,000	
1948	1,000,000	3,000,000	1,000,000	5,000,000	
1949	1,000,000	3,000,000	1,000,000	5,000,000	
1950	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1951	1,000,000	3,000,000	1,000,000	5,000,000	
1952	1,000,000	3,000,000	1,000,000	5,000,000	
1953	1,000,000	3,000,000	1,000,000	5,000,000	
1954	1,000,000	3,000,000	1,000,000	5,000,000	
1955	1,000,000	3,000,000	1,000,000	5,000,000	
1956	1,000,000	3,000,000	1,000,000	5,000,000	
1957	1,000,000	3,000,000	1,000,000	5,000,000	
1958	1,000,000	3,000,000	1,000,000	5,000,000	
1959	1,000,000	3,000,000	1,000,000	5,000,000	
1960	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1961	1,000,000	3,000,000	1,000,000	5,000,000	
1962	1,000,000	3,000,000	1,000,000	5,000,000	
1963	1,000,000	3,000,000	1,000,000	5,000,000	
1964	1,000,000	3,000,000	1,000,000	5,000,000	
1965	1,000,000	3,000,000	1,000,000	5,000,000	
1966	1,000,000	3,000,000	1,000,000	5,000,000	
1967	1,000,000	3,000,000	1,000,000	5,000,000	
1968	1,000,000	3,000,000	1,000,000	5,000,000	
1969	1,000,000	3,000,000	1,000,000	5,000,000	
1970	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1971	1,000,000	3,000,000	1,000,000	5,000,000	
1972	1,000,000	3,000,000	1,000,000	5,000,000	
1973	1,000,000	3,000,000	1,000,000	5,000,000	
1974	1,000,000	3,000,000	1,000,000	5,000,000	
1975	1,000,000	3,000,000	1,000,000	5,000,000	
1976	1,000,000	3,000,000	1,000,000	5,000,000	
1977	1,000,000	3,000,000	1,000,000	5,000,000	
1978	1,000,000	3,000,000	1,000,000	5,000,000	
1979	1,000,000	3,000,000	1,000,000	5,000,000	
1980	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1981	1,000,000	3,000,000	1,000,000	5,000,000	
1982	1,000,000	3,000,000	1,000,000	5,000,000	
1983	1,000,000	3,000,000	1,000,000	5,000,000	
1984	1,000,000	3,000,000	1,000,000	5,000,000	
1985	1,000,000	3,000,000	1,000,000	5,000,000	
1986	1,000,000	3,000,000	1,000,000	5,000,000	
1987	1,000,000	3,000,000	1,000,000	5,000,000	
1988	1,000,000	3,000,000	1,000,000	5,000,000	
1989	1,000,000	3,000,000	1,000,000	5,000,000	
1990	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
1991	1,000,000	3,000,000	1,000,000	5,000,000	
1992	1,000,000	3,000,000	1,000,000	5,000,000	
1993	1,000,000	3,000,000	1,000,000	5,000,000	
1994	1,000,000	3,000,000	1,000,000	5,000,000	
1995	1,000,000	3,000,000	1,000,000	5,000,000	
1996	1,000,000	3,000,000	1,000,000	5,000,000	
1997	1,000,000	3,000,000	1,000,000	5,000,000	
1998	1,000,000	3,000,000	1,000,000	5,000,000	
1999	1,000,000	3,000,000	1,000,000	5,000,000	
2000	1,000,000	3,000,000	1,000,000	5,000,000	
	Proof Gallons.				
2001	1				

DUTIES.	On Foreign.	ENTERED FOR HOME CONSUMPTION				Remaining in Bonded Warehouses on 31st December.	Year.
		From British West India Islands.	From British Guiana.	From Other Countries.	Total.		
		Proof Gallons.	Proof Gallons.	Proof Gallons.	Proof Gallons.	Proof Gallons.	
	10s.	—	—	—	—	—	1851.
	10s.	—	—	—	—	—	1852.
	10s.	1,542,354	1,297,325	203,123	3,042,802	—	1853.
	10s.	1,468,275	1,455,398	303,643	3,227,316	—	1854.
	10s.	1,450,315	1,594,375	369,428	3,414,118	—	1855.
	10s.	1,513,215	1,615,596	395,967	3,524,778	4,096,235	1856.
	10s.	1,513,592	1,517,360	335,593	3,366,545	4,097,375	1857.
	10s.	1,509,645	1,506,714	309,816	3,326,175	5,473,594	1858.
	10s.	1,509,945	1,509,722	315,013	3,334,680	5,502,572	1859.
	10s., 4s. 6d., and 10s. 5d.	1,344,082	1,346,196	355,580	3,045,858	5,103,796	1860.
	Not from Country of Production.						
July, 1860.	10s. 5d.	1,259,043	1,320,369	261,113	2,840,525	7,243,148	1861.
	10s. 5d.	1,373,386	1,714,472	325,584	3,413,442	8,293,299	1862.
	10s. 5d.	1,370,357	1,725,867	323,636	3,419,860	8,675,174	1863.
	10s. 5d.	1,395,695	1,898,366	327,347	3,621,318	9,265,505	1864.
	10s. 5d.	1,490,858	1,993,732	325,465	3,810,055	1,220,024	1865.
	10s. 5d.	1,515,171	2,137,142	373,102	4,025,415	1,542,992	1866.
	10s. 5d.	1,608,539	2,178,430	618,299	4,405,268	1,619,676	1867.
	10s. 5d.	1,655,482	2,055,482	500,422	4,211,386	1,632,575	1868.
	10s. 5d.	1,695,060	2,124,115	391,439	4,210,614	1,640,584	1869.
	10s. 5d.	1,613,734	1,731,315	445,749	3,800,798	1,634,177	1870.
	10s. 5d.	—	—	—	—	1,991,067	1871.
	10s. 5d.	—	—	—	—	5,991,067	1872.
	10s. 5d.	—	—	—	—	5,991,067	1873.
	10s. 5d.	—	—	—	—	6,408,267	1874.
	10s. 5d.	—	—	—	—	7,157,678	1875.
	10s. 5d.	—	—	—	—	10,593,416	1876.
	10s. 5d.	—	—	—	—	10,593,416	1877.
	10s. 5d.	—	—	—	—	10,113,277	1878.
	10s. 5d.	—	—	—	—	9,405,410	1879.
	10s. 5d.	—	—	—	—	8,715,514	1880.
April, 1881.	10s. 4d.	—	—	—	—	6,581,261	1881.
	10s. 4d.	—	—	—	—	7,191,115	1882.
	10s. 4d.	—	—	—	—	6,643,406	1883.
	10s. 4d.	—	—	—	—	7,212,890	1884.
	10s. 4d.	—	—	—	—	8,295,105	1885.
	10s. 4d.	—	—	—	—	7,215,113	1886.
	10s. 4d.	—	—	—	—	8,096,261	1887.
	10s. 4d.	—	—	—	—	8,106,415	1888.
	10s. 4d.	—	—	—	—	8,103,357	1889.
April, 1890.	10s. 10d.	—	—	—	—	5,129,505	1890.
	10s. 10d.	—	—	—	—	6,001,871	1891.
	10s. 10d.	—	—	—	—	7,047,494	1892.
	10s. 10d.	—	—	—	—	8,065,634	1893.
April, 1894.	11s. 4d.	—	—	—	—	9,002,766	1894.
July, 1905.	10s. 10d.	—	—	—	—	8,567,023	1905.
	10s. 10d.	—	—	—	—	9,701,552	1906.
	10s. 10d.	—	—	—	—	8,003,625	1907.
	10s. 10d.	—	—	—	—	7,541,464	1908.
May, 1909.	10s. 10d. per proof gallon, and 1s. additional if imported in Bonds.	—	—	—	—	7,581,332	1909.
March, 1909.	11s. 6d. per proof gallon, and 1s. added if imported in Bonds.	—	—	—	—	8,026,007	1909.
		—	—	—	—	7,155,086	1901.

1-BRITISH SPIRITS.

COMPASSIVE STATEMENT, showing for England, Scotland, and Ireland respectively, the Quantities charged with Duty in each period of 25 years from 1851 to 1876 inclusive, and from 1871 to 1901 inclusive.

Year ended 31st March.	Number of gallons charged with duty.				Year ended 31st March.	Percentage of Increase in Total for each 25 years.			
	England.	Scotland.	Ireland.	United Kingdom.		1851-1876.	1871-1901.	1876-1901.	1901-1926.
1851	9,505,968	6,520,710	1,250,518	22,276,196	1877	16,414,904	7,005,860	1,005,860	6,281,784
1852	9,290,608	7,172,015	8,308,826	25,000,479	1878	17,026,659	7,141,755	1,141,755	6,115,202
1853	10,530,207	6,564,645	8,176,262	25,091,117	1879	16,518,079	6,460,066	6,607,066	28,034,795
1854	10,120,461	5,905,062	6,807,412	22,832,977	1880	16,132,102	6,066,401	5,075,102	27,269,605
1855	10,120,461	5,905,062	6,807,412	22,832,977	1881	17,280,282	6,705,716	5,184,702	28,170,286
1856	11,264,198	5,515,171	6,781,207	23,560,576	1882	16,506,078	6,512,794	5,131,794	28,034,795
1857	11,264,198	5,515,171	6,781,207	23,560,576	1883	16,655,006	6,706,000	5,277,122	28,170,286
1858	11,864,196	5,124,815	6,418,400	23,407,411	1884	16,322,748	6,709,003	5,201,128	28,170,286
1859	12,944,029	5,581,173	6,950,241	25,475,443	1885	16,322,748	6,709,003	5,201,128	28,170,286
1860	13,108,113	4,590,005	4,191,560	21,899,678	1886	15,200,816	6,297,202	4,701,670	26,212,681
1861	13,108,113	4,590,005	4,191,560	21,899,678	1887	15,460,129	6,121,284	4,565,284	25,151,129
1862	10,728,768	4,700,150	3,907,826	19,336,744	1888	15,110,009	6,002,716	4,504,428	25,151,129
1863	11,196,251	5,029,210	4,157,241	20,382,702	1889	15,848,289	6,302,101	4,804,710	25,151,129
1864	11,264,198	5,515,171	4,518,251	21,297,620	1890	16,503,723	6,503,878	4,110,683	27,128,284
1865	11,264,198	5,515,171	4,518,251	21,297,620	1891	18,458,418	6,519,619	4,881,101	28,170,286
1866	12,166,782	5,102,706	4,667,102	21,936,590	1892	17,029,658	6,781,028	5,634,290	21,469,192
1867	11,264,198	5,102,706	4,667,102	21,034,006	1893	19,203,434	6,443,711	4,275,728	20,000,000
1868	11,264,198	5,102,706	4,667,102	21,034,006	1894	19,765,125	6,461,280	4,261,280	20,000,000
1869	11,264,198	5,102,706	4,667,102	21,034,006	1895	21,107,922	6,462,650	4,462,650	20,000,000
1870	12,166,782	5,102,706	4,667,102	21,936,590	1896	22,961,122	6,790,042	4,790,042	20,000,000
1871	12,166,782	5,102,706	4,667,102	21,936,590	1897	21,267,681	6,796,789	4,796,789	20,000,000
1872	12,166,782	5,102,706	4,667,102	21,936,590	1898	21,267,681	6,796,789	4,796,789	20,000,000
1873	12,166,782	5,102,706	4,667,102	21,936,590	1899	21,267,681	6,796,789	4,796,789	20,000,000
1874	12,166,782	5,102,706	4,667,102	21,936,590	1900	21,267,681	6,796,789	4,796,789	20,000,000
1875	12,166,782	5,102,706	4,667,102	21,936,590	1901	21,267,681	6,796,789	4,796,789	20,000,000
1876	12,166,782	5,102,706	4,667,102	21,936,590	1902	21,267,681	6,796,789	4,796,789	20,000,000
1877	12,166,782	5,102,706	4,667,102	21,936,590	1903	21,267,681	6,796,789	4,796,789	20,000,000
1878	12,166,782	5,102,706	4,667,102	21,936,590	1904	21,267,681	6,796,789	4,796,789	20,000,000
1879	12,166,782	5,102,706	4,667,102	21,936,590	1905	21,267,681	6,796,789	4,796,789	20,000,000
1880	12,166,782	5,102,706	4,667,102	21,936,590	1906	21,267,681	6,796,789	4,796,789	20,000,000
1881	12,166,782	5,102,706	4,667,102	21,936,590	1907	21,267,681	6,796,789	4,796,789	20,000,000
1882	12,166,782	5,102,706	4,667,102	21,936,590	1908	21,267,681	6,796,789	4,796,789	20,000,000
1883	12,166,782	5,102,706	4,667,102	21,936,590	1909	21,267,681	6,796,789	4,796,789	20,000,000
1884	12,166,782	5,102,706	4,667,102	21,936,590	1910	21,267,681	6,796,789	4,796,789	20,000,000
1885	12,166,782	5,102,706	4,667,102	21,936,590	1911	21,267,681	6,796,789	4,796,789	20,000,000
1886	12,166,782	5,102,706	4,667,102	21,936,590	1912	21,267,681	6,796,789	4,796,789	20,000,000
1887	12,166,782	5,102,706	4,667,102	21,936,590	1913	21,267,681	6,796,789	4,796,789	20,000,000
1888	12,166,782	5,102,706	4,667,102	21,936,590	1914	21,267,681	6,796,789	4,796,789	20,000,000
1889	12,166,782	5,102,706	4,667,102	21,936,590	1915	21,267,681	6,796,789	4,796,789	20,000,000
1890	12,166,782	5,102,706	4,667,102	21,936,590	1916	21,267,681	6,796,789	4,796,789	20,000,000
1891	12,166,782	5,102,706	4,667,102	21,936,590	1917	21,267,681	6,796,789	4,796,789	20,000,000
1892	12,166,782	5,102,706	4,667,102	21,936,590	1918	21,267,681	6,796,789	4,796,789	20,000,000
1893	12,166,782	5,102,706	4,667,102	21,936,590	1919	21,267,681	6,796,789	4,796,789	20,000,000
1894	12,166,782	5,102,706	4,667,102	21,936,590	1920	21,267,681	6,796,789	4,796,789	20,000,000
1895	12,166,782	5,102,706	4,667,102	21,936,590	1921	21,267,681	6,796,789	4,796,789	20,000,000
1896	12,166,782	5,102,706	4,667,102	21,936,590	1922	21,267,681	6,796,789	4,796,789	20,000,000
1897	12,166,782	5,102,706	4,667,102	21,936,590	1923	21,267,681	6,796,789	4,796,789	20,000,000
1898	12,166,782	5,102,706	4,667,102	21,936,590	1924	21,267,681	6,796,789	4,796,789	20,000,000
1899	12,166,782	5,102,706	4,667,102	21,936,590	1925	21,267,681	6,796,789	4,796,789	20,000,000
1900	12,166,782	5,102,706	4,667,102	21,936,590	1926	21,267,681	6,796,789	4,796,789	20,000,000
1901	12,166,782	5,102,706	4,667,102	21,936,590	1927	21,267,681	6,796,789	4,796,789	20,000,000
1902	12,166,782	5,102,706	4,667,102	21,936,590	1928	21,267,681	6,796,789	4,796,789	20,000,000
1903	12,166,782	5,102,706	4,667,102	21,936,590	1929	21,267,681	6,796,789	4,796,789	20,000,000
1904	12,166,782	5,102,706	4,667,102	21,936,590	1930	21,267,681	6,796,789	4,796,789	20,000,000
1905	12,166,782	5,102,706	4,667,102	21,936,590	1931	21,267,681	6,796,789	4,796,789	20,000,000
1906	12,166,782	5,102,706	4,667,102	21,936,590	1932	21,267,681	6,796,789	4,796,789	20,000,000
1907	12,166,782	5,102,706	4,667,102	21,936,590	1933	21,267,681	6,796,789	4,796,789	20,000,000
1908	12,166,782	5,102,706	4,667,102	21,936,590	1934	21,267,681	6,796,789	4,796,789	20,000,000
1909	12,166,782	5,102,706	4,667,102	21,936,590	1935	21,267,681	6,796,789	4,796,789	20,000,000
1910	12,166,782	5,102,706	4,667,102	21,936,590	1936	21,267,681	6,796,789	4,796,789	20,000,000
1911	12,166,782	5,102,706	4,667,102	21,936,590	1937	21,267,681	6,796,789	4,796,789	20,000,000
1912	12,166,782	5,102,706	4,667,102	21,936,590	1938	21,267,681	6,796,789	4,796,789	20,000,000
1913	12,166,782	5,102,706	4,667,102	21,936,590	1939	21,267,681	6,796,789	4,796,789	20,000,000
1914	12,166,782	5,102,706	4,667,102	21,936,590	1940	21,267,681	6,796,789	4,796,789	20,000,000
1915	12,166,782	5,102,706	4,667,102	21,936,590	1941	21,267,681	6,796,789	4,796,789	20,000,000
1916	12,166,782	5,102,706	4,667,102	21,936,590	1942	21,267,681	6,796,789	4,796,789	20,000,000
1917	12,166,782	5,102,706	4,667,102	21,936,590	1943	21,267,681	6,796,789	4,796,789	20,000,000
1918	12,166,782	5,102,706	4,667,102	21,936,590	1944	21,267,681	6,796,789	4,796,789	20,000,000
1919	12,166,782	5,102,706	4,667,102	21,936,590	1945	21,267,681	6,796,789	4,796,789	20,000,000
1920	12,166,782	5,102,706	4,667,102	21,936,590	1946	21,267,681	6,796,789	4,796,789	20,000,000
1921	12,166,782	5,102,706	4,667,102	21,936,590	1947	21,267,681	6,796,789	4,796,789	20,000,000
1922	12,166,782	5,102,706	4,667,102	21,936,590	1948	21,267,681	6,796,789	4,796,789	20,000,000
1923	12,166,782	5,102,706	4,667,102	21,936,590	1949	21,267,681	6,796,789	4,796,789	20,000,000
1924	12,166,782	5,102,706	4,667,102	21,936,590	1950	21,267,681	6,796,789	4,796,789	20,000,000
1925	12,166,782	5,102,706	4,667,102	21,936,590	1951	21,267,681	6,796,789	4,796,789	20,000,000
1926	12,166,782	5,102,706	4,667,102	21,936,590	1952	21,267,681	6,796,789	4,796,789	20,000,000
1927	12,166,782	5,102,706	4,667,102	21,936,590	1953	21,267,681	6,796,789	4,796,789	20,000,000
1928	12,166,782	5,102,706	4,667,102	21,936,590	1954	21,267,681	6,796,789	4,796,789	20,000,000
1929	12,166,782	5,102,706	4,667,102	21,936,590	1955	21,267,681	6,796,789	4,796,789	20,000,000
1930	12,166,782	5,102,706	4,667,102	21,936,590	1956	21,267,681	6,796,789	4,796,789	20,000,000
1931	12,166,782	5,102,706	4,667,102	21,936,590	1957	21,267,681	6,796,789	4,796,789	20,000,000
1932	12,166,782	5,102,706	4,667,102	21,936,590	1958	21,267,681	6,796,789	4,796,789	20,000,000
1933	12,166,782	5,102,706	4,667,102	21,936,590	1959	21,267,681	6,796,789	4,796,789	20,000,000
1934	12,166,782	5,102,706	4,667,102	21,936,590	1960	21,267,681	6,796,789	4,796,789	20,000,000
1935	12,166,782	5,102,706	4,667,102	21,936,590	1961	21,267,681	6,796,789	4,796,789	20,000,000
1936	12,166,782	5,102,706	4,667,102	21,936,590					

I.

NOTES on *Beaumé's Hydrometer* from *Thorpe's Dictionary*, furnished by H. J. Helm, Esq., F.I.C., F.C.S., Deputy Principal of the Government Laboratory.

The graduations on the stem are all equal, and the scale is fixed according to *Beaumé's* directions in the following manner: For liquids denser than water, fifteen parts of pure *sodic chloride* are dissolved in 85 parts of water at a temperature of 10° Réaumur (12.5° C. or 54.5° F.). The zero of the instrument is the point to which the hydrometer sinks in distilled water, and the point to which it sinks in the 15 p. c. solution of salt is marked 15. The distance between the zero and this point is divided into 15 equal parts, and the whole stem graduated with similar divisions. [For liquids lighter than water the zero of the hydrometer is fixed by a 10 p. c. solution of *sodic chloride*, distilled water giving the division 10. This instrument is, of course, graduated in the opposite direction, the zero being at the bottom of the scale.] Notwithstanding the very definite directions given for graduating the scale, it appears that the instrument makers have departed from it, and in 1881 Professor C. F. Chandler read a paper before the National Academy of Sciences at Philadelphia, in which he states he has found twenty-three different scales for the hydrometer for liquids heavier than water, no one of which can be said to be correct; and for liquids lighter than water he has found eleven different scales. *Beaumé's* idea was that each degree of his scale would give the percentage of salt present in a solution, and on this assumption many instrument-makers seem to have employed the 10 p. c. solution for graduating both instruments. Others have used oil of vitriol as the standard for 66° , but as oil of vitriol is by no means constant in its density, errors have been introduced.

Professor Chandler gives the tables below for the values of the degrees of *Beaumé's* hydrometers from experiments conducted in exact accordance with *Beaumé's* original directions. The density for the 15 p. c. salt solution used for the calculation of the first table is the mean of thirteen determinations by different observers.

TABLE for liquids heavier than water.

Value of degrees *Beaumé* calculated from $0^{\circ} = 1$, and $15^{\circ} = 1.1118,958$. Temperature $10^{\circ}\text{R} = 12.5^{\circ}\text{C} = 54.5^{\circ}\text{F}$. By Professor Chandler.

<i>Beaumé's</i> degrees.	Specific Gravity.	<i>Beaumé's</i> degrees.	Specific Gravity.	<i>Beaumé's</i> degrees.	Specific Gravity.
0	1.00000	14	1.10366	28	1.23131
1	1.00675	15	1.11180	29	1.24156
2	1.01360	16	1.12023	30	1.25199
3	1.02054	17	1.12873	31	1.26260
4	1.02757	18	1.13735	32	1.27338
5	1.03471	19	1.14609	33	1.28436
6	1.04194	20	1.15497	34	1.29552
7	1.04927	21	1.16399	35	1.30688
8	1.05671	22	1.17316	36	1.31844
9	1.06426	23	1.18246	37	1.33021
10	1.07191	24	1.19192	38	1.34218
11	1.07968	25	1.20153	39	1.35438
12	1.08756	26	1.21129	40	1.36680
13	1.09555	27	1.22122	41	1.37945

Baumé's degrees.	Specific Gravity.	Baumé's degrees.	Specific Gravity.	Baumé's degrees.	Specific Gravity.
42	1.39234	54	1.56812	66	1.79170
43	1.40347	55	1.58179	67	1.80637
44	1.41885	56	1.60182	68	1.82299
45	1.42948	57	1.61923	69	1.84196
46	1.44538	58	1.63701	70	1.86351
47	1.46656	59	1.65519	71	1.88667
48	1.48501	60	1.67378	72	1.91116
49	1.48975	61	1.69279	73	1.93689
50	1.50479	62	1.71223	74	1.96401
51	1.52014	63	1.73213	75	2.01283
52	1.53580	64	1.75250	76	2.04708
53	1.55179	65	1.77345		

TABLE from Thorpe's Dictionary of Applied Chemistry showing the relation of percentages, specific gravities, and degrees Baumé in sugar solutions.

Percentage of sugar.	Specific Gravity.	Degree Baumé.	Percentage of Sugar.	Specific Gravity.	Degree Baumé.
1	1.0028	0.55	18	1.0744	10.0
2	1.0057	1.1	19	1.0786	10.5
3	1.0117	1.7	20	1.0832	11.1
4	1.0157	2.2	21	1.0877	11.6
5	1.0197	2.8	22	1.0923	12.2
6	1.0237	3.3	23	1.0968	12.7
7	1.0277	3.9	24	1.1014	13.3
8	1.0318	4.4	25	1.1060	13.8
9	1.0359	5.0	26	1.1107	14.35
10	1.0401	5.55	27	1.1154	14.9
11	1.0443	6.1	28	1.1201	15.4
12	1.0485	6.7	29	1.1248	16.0
13	1.0527	7.2	30	1.1296	16.6
14	1.0570	7.8	31	1.1344	17.1
15	1.0613	8.3	32	1.1393	17.6
16	1.0656	8.9	33	1.1442	18.15
17	1.0700	9.4	34	1.1491	18.7

Percentage of Sugar.	Specific Gravity.	Degrees Baumé.	Percentage of Sugar.	Specific Gravity.	Degrees Baumé.
35	1-1541	19-2	61	1-3958	32-9
36	1-1591	19-8	62	1-4017	33-4
37	1-1641	20-3	63	1-4077	33-9
38	1-1692	20-8	64	1-4138	34-4
39	1-1743	21-1	65	1-4198	34-9
40	1-1794	21-9	66	1-4260	35-4
41	1-1846	22-4	67	1-4322	35-9
42	1-1898	23-0	68	1-4384	36-4
43	1-1950	23-5	69	1-4446	36-9
44	1-2003	24-0	70	1-4509	37-4
45	1-2056	24-6	71	1-4572	37-9
46	1-2110	25-1	72	1-4635	38-3
47	1-2163	25-6	73	1-4699	38-8
48	1-2218	26-1	74	1-4764	39-3
49	1-2272	26-7	75	1-4828	39-8
50	1-2327	27-2	76	1-4894	40-3
51	1-2383	27-7	77	1-4959	40-8
52	1-2439	28-2	78	1-5025	41-3
53	1-2495	28-75	79	1-5092	41-8
54	1-2551	29-3	80	1-5158	42-2
55	1-2608	29-8	81	1-5226	42-7
56	1-2665	30-3	82	1-5293	43-2
57	1-2723	30-8	83	1-5361	43-7
58	1-2781	31-3	84	1-5430	44-2
59	1-2840	31-85	85	1-5498	44-6
60	1-2898	32-4	86	1-5568	45-1

Dr. Thorpe says this Table was supplied by Messrs. Newlands, Chemists and Sugar Experts, and would probably be the one used in the Sugar Trade.