1931.

№ 17385.

SUBJECT CO 533/417

Expulsion of Undesirables Ordinance

Previous

16094/20.

Subsequent

3075/33.

FILE C.

(1810) W1.22100/204 B.000 4/42

. 4. Actually of course there can only be one correct capacity, giving standard conditions. Even so there is far from being unanimity of opinion, as can be seen from the following different figures given by various authorities:-

Cubic inches per la luminos per la l

British Gauging instructions Birch (*ext Book) Recens (Text Book) Rebster Redwood (a London firm of gaugers) Shell Company Whitaker

- 5. So far as this pepartment is concerned the figure of 277.274 has always been used. As however this figure is now being challenged it would appear desirable to obtain a ruling from the pecretary of State and a suggest that this be done without delay as a number of large petroleum storage tanks at the Shimansi Bulk til Installation will shortly be ready for calibration.
- 6. May I point out an error in the typed copy of the Shell Co's letter: line 2 of paragraph 2 1924 should read 1824.

EDWARD E. LORD

for Commissioner of Customs, Kenya and Uganda. 1931.

12th October, 31.

The Golonial Secretary, Hairobi.

IMPARIAL GALLOW.

Mef. Your B.MIS. 10/1/V/208 of 9th October.

An imperial gallon is defined in the bauging Instructions issued by the board of Gustoms and excise, London, as follows:-

"Imperial Callon: A cubic inch of distilled water, when the temperature is at 62° Fahrenheit, and baroneter at 30 inches, weighs, in air, 252.458 grains. The imperial gallon, the standard of liquid accountment in this country, contains 277.274 cubic inches, and weighs, under similar conditions, exactly 10 pounds, or 70,000 grains avoirdupois. The capacity in cubic inches of any vessel, divided by 277.274 will therefore give the content in imperial gallons."

- The legal authority for the above is not stated but I assume it is Act. 5 Geo IV c 74 (Sections 5,4 and 5).
- 3. In this country the Imperial Standard Gallon is equivalent to that defined in Act. 41 and 42 Vio. oh. 49, known as the Weights and Measures Act 1878. (See Section 3 ch. 96 Laws of Kenya). I have seen the 1878 Act referred to and find that in point of fact it does not actually define the capacity of a gallon but only lays down the standard conditions under which the capacity is measured, that is temperature at 62° Fahrenheit and the Marometer at 10 inches.

outle inches. This Yigure is used for all property to determining the standard gallon by the Weights and Ressures Ordinages.

It would appear therefore that the 1824 figure became obsolete upon the date of repeal of the 1824 Act viz: 8th August 1878 and that the definition given in the 1889 Order-in-Council is the only legal definition.

You will observe therefore that in this Colony and Protectorate the definition given in the 1824 Act is used for the purpose of calculating Import Duty whereas for retail purposes the capacity of a gallon is based on the definition given in the 1889 Order-in-Council.

We trust you will agree that the imperial Gallon should be calculated on the same basis for all purposes and we shall be glad to have your comments and ruling on the foregoing at your comments.

We have the honour to be, Sir.

For the Shell company of Bast Africa LTD S/d. E. Wilson Jones ? THE SHELL COMPANY OF EAST AFRICA LIMITED.

P.O. Box 930,

A.4723 (38/4).

NAIROBI.

3rd. October, 1931.

The Honourable, The Colonial Secretary, MAIROBI.

Sir.

IMPERIAL GALLON.

We recently had some correspondence with the Customs Department, Mombasa, regarding the calibration of petroleum storage tanks. These tanks are measured after erection and from the cubic capacity so determined, the capacity in gallens is arrived at by using as a conversion factor a standard number of cubic inches to the gallon. The Customs Authorities state that there are 277.274 cubic inches in one Imperial gallon while we universally use the figure of 277.462879. We have communicated with the Department of Weights and Measures, Mairobi, and they express the opinion that the latter figure is correct.

The Customs figure is we believe taken from the definition given by the 1824 Act (5 Geo. 4 Chap. 74. Sec. 14) which reads "..... the same being in bulk equal to 277 cubic inches and 274 one thousand parts of a cubic inch....."

This section among others was repealed by
the 1878 Act (Section 86 and Schedule 6, First Part)
but no amended figure was made legal at the time.

However, by an Order-in-Council dated 28th November 1889
the value 252.286 is given as the weight in grains of
a cubic inch of water under the conditions specified
in the 1878 Act Sec.15; therefore by deficulation this
gives the capacity of the Imperial Sallon as 277.462879

NO. 6/6



RECEIVED 23NOV 1931 COL OFFICE

Sir.

GOVERNMENT HOUSE, NAIROBI,

KENYA.

october 331

W

I have the honour to enclose copies of the undermentioned papers raising the question of the number of cubic inches to be used as the conversion factor in determining capacity in imperial gallons. viz:-

Letter No.A.4723 (38/4) of the 3rd. October, 1931, from The Shell Company of East Africa Limited, Nairobi.

Letter No. 1931 of the 12th October, 1931, from the Commissioner of Customs.

- 2. It is understood that while the question does not materially affect the calculation of the quantity of petrol for retail purposes it is of considerable importance in the proper assessment of import duty.
- 3. The Attorney General advises that as the matter is not governed by any local enactment it would be well to ascertain the accepted conversion factor through the Board of Trade, and I should therefore be glad if you would kindly let me have a ruling.

I have the homeur to be,

Your most obedient, humble servant,

THE RIGHT HONOURABLE J.H. THOMAS, P.C., M.P., EECRETARY OF STATE FOR THE COLONIES, DOWNING STREET,

LONDON, S.W.1.

BRIGADIER GENERAL GOVERNOR.

boy () weby to 3 e se & 5

No. 701.

Collector of Customs & Excise.

Cape Town , 12th August, 1931.

Messrs Vacuum Cil Co., of s.A.Itd., F.O.Box 35 Cape Yown.

Gentlemen.

Relationship between usllon and Cubic Foot.

2

I have the honour to inform you that instructions have been received from the commissioner of customs and excise that in accordance with the terms of an official letter addressed to the institute of Trade and retroleum Technologists by the pritish Board of Trade and supported by the L.S.A. Bureau of Standards, the relationship between the cubic and the imperial gallon is in future to be taken to be:-

1 cubic foot of water - 5.22884 gallons 1 gallon of water - 277.419 cubic inches.

As the existing tables for your bonder storage tanks at cape frown were computed on the basis of a gallon taking up tables to be corrected to agree with the new cubic measurement of a gallon, and pending the re-framing of the tables the commissioner has authorised the use of the factor 1.000158 for the correction of the gallonage as per dips by the existing tables.

This factor is the product of

277.46288 being the difference between the old and new volumes of the standard gallon.

As the cubic measurement of the American standard gallon is 231 cubic inches, its relationship to the new standard Imperial gallon will be as .83267 is to 1 and the formulasioner has directed that this factor must be used in gallons.

The re-framing of the tables to be used for your bonded tanks may be done on the dimensions of the tanks as originally ascertained by this persentent, and I shall be prepared to depute an officer to collaborate with you in the work.

I have the honour to be, Gentlemen, Your obedient servant.

Sgd. W. Anthony,

Collector of Customs and croise

CAPE TOWN, 16th October, 1931.

To . 1985/Weel.

R. Hudson Esq.,

Bulk Installation (39-24

Dear Sir.

We enclose herewith copy of letter received from the Collector of Customs & Excise, Cape Town, from which you will note that in future the relationship between the cubic foot and the Imperial galben in to be taken as-

> 1 Cubic foot - 4.22884 Callons 1 Callon - 277.419 Cubic inches.

It naturally follows that the relationship of the American Gallen to the Imperial gallon also alters, the conversion factor becoming .83267 and not .83284 as used at present.

The existing tables for all sur storage tanks in the Union are based on a gallow being equivalent to 277.46285 cubic inches, which, until recently, was the standard accepted, and we presume the tables for the storage tanks in your territory have been computed on the same basis.

In view of the fact that the volume of the standard gallon has now to be taken as being equal to 377.419 ouble inches, we are revising our tables in accordance therewith, and as it is essential that we have uniformity in this matter throughout our organisation, we would not you to approach the "ustems authorities on the point and if they agree, to obtain their collaboration in preparing revised tables for your main storage tanks on the new basis.

The new regulation comes into force in the Union on Hovember 55th, and it is our Hobject to make the change over simultaneous at all branches.

It willimot of course, be necessary to make new tables for the 10° % 30' Filling Tanks or Railway Tank Care, as the difference in such relatively small quantities is negligible.

will you please give the above your early attention and when the new tables are completed, forward two copies for our files.

Yours trully,

8d. ... White.

MANAGING DIRECTOR

WMacI/GB. Encl.

Monbasa, 50th October 1931

The Hon. Count asioner of Custons,

Dear Sir,

Further to our conversation with you this sorning, during shich we laid before you correspondence from our Head Office, in Cape Town enclosing a letter containing instructions from the Consistence of Customs & Excise, Bouth Africa, with regard to the future relationship between the outsic foot and the imperial gallon, we beg to make application to you for a revision in the existing tables of our storage tasks in last Africa on similar lines.

tanks in East Africe on similar lines.

You will remember that in an efficial letter addressed to the Institute of Trade and Petroleum Technoligists by the British Board of Trade supported by the U.S.A.Bureau of Standards, the relationship between the oubic foot and the imperial gallon to be taken for the future is given as:

1 Cubic foot of water 3 = 6.22884 gallens = 277.419 cubic ins

The conversion factor between the American gallen and the Imperial gallon now becomes .83267.

We trust you will give this matter your sympathetic and early consideration, as the change will be effected in the Union of South Africa as from 25th Bovember next, and it is our desire as far as possible to keep our figures in line with those prepared in South Sfrica.

Yours truly, Youth Africa Ltd.,

sd... Hudson, Chief Executive, E.Africa.



The Honourable
The Colonial Secretary,
Nairobi.

IMIERIAL GALLON.

With further reference to my Memorandum No. 1951 of the 12th October, I enclose copy of correspondence relative to the capacity of a standard gallon in terms of cubic inches, which has just been received from the local representative of the secuum Gil Co. From the correspondence it will be seen that this particular point has recently been engaging the attention of the customs Authorities of the Union of South Africa and that in the letter of the Collector of customs, Cape Town, dated 12th August, the content is fixed at 277.419 cubic inches, a figure which has not hitherto been mentioned.

2. The matter is one of some urgency, affecting as it does the measurement of all oils imported in bulk and I therefore suggest that the further information now forthcoming be transmitted to the Secretary of State by air mail with a request that his decision in regard to measurement be communicated by cable. It may then be possible to comply with the request of the Vacuum Oil Co., that if any change is made, the date of alteration shall synchonise with the date fixed in South Africa 25th November.

And adopt of Dustons

BY AIR MAIL.

KENYA. No. 637



GOVERNMENT HOUSE NAIROBL

KENYA

RECEIVED 21 NOV 1931 OL OFFICE

Sir.

I have the honour to refer to my despatch No. 616 of the 26th October, regarding the capacity of the imperial gallon and to transmit for your information a further memorandum No.1931 of the 31st October, 1931, from the Commissioner of Customs with the enclosure referred to therein.

I should be grateful if you would communicate your ruling by telegram.

I have the honour to be,

Bir.

Your most obedient humble

BRIGADIER GENERAL.

GOVERNOR.

THE RIGHT HONOURABLE MAJOR SIR PHILIP CUNLIFFE-LISTER, P.C., G.B.E., M.C., M.P., SECRETARY OF STATE FOR THE COLONIES. DOWNING STREET,

LONDON, S.W.1.

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אובן פרברי X C. O. INPORTANT O.D.

No ups.

S. No ups. M. Santus 23. Mr. yasmit 23.11 31 Mr. Frenton 25 M. Mr. Tomlinson. Sir C. Bottomley, I am ate to four to you k Sir J. Shuckburgh. he laid before the QD of Frank Permit. U.S. of S. Parly. U.S. of S. cours of two darpitches from Secretary of State. ten for a Kanga angansing he DRAFT. for comon / humber of cubic wichen the a sey uses as the commercian factor in any of thate determine a capity inferial 8 ellows. 3. Ser / 3.2 2. اكم . ١٤ لك له aucher for fire franch glas to learn what is the accepted congruence from the land to the built Kingdom and the built Kingdom and the land to the lan 2 Confine White View.

limits, of 2 fl.oz. in excess, and 1 fl.oz. in deficiency, that is to say between the limits of 280.89 and 275.59 cubic inches. It is doubtful also whether the ordinary methods employed in estimating cubical capacity from linear measurement are capable of any higher degree of accuracy than this.

The Department have, therefore, found it necessary repeatedly to emphasise the fact that no conversion of cubic space to gallonage can ever provide more than the roughest approximation to the truth unless the measuring apparatus employed and the methods adopted in the measurement are greatly improved. This point may be made still more apparent by noting that even a standard gallon measure as used by an inspector would be accepted by this Department if the capacity lay between the limits corresponding to 277.67 and 277.14 outle inches, a range which includes all the conversion factors which are now current.

This is certainly nearer the truth than the older figure, but must again be regarded only as an estimated value and not as a legalised figure.

The factor new regarded by the Board as the most reliable is based on a determination of the density of water at different temperatures undertaken by Chappuis at the Bureau International des Poids et Mesures in order to resolve the similar difficulty arising as to the relation between the litre and the cubic decimetre (1000 c.c.) which are not exactly equal. From the results of these experiments, the Department have calculated the primary result

1 cubic foot = 6.2288(3) gallons.

The last figure is uncertain in consequence of

- (a) errors inherent in the original experiments.
- (b) probable errors in the equivalents employed in passing from the original metric into Imperial units.
- (c) lack of complete precision in the statutory definition of the gallon, which involves the making of certain arbitrary assumptions.

From the figure last quoted is derived the result that the gallon contains 277.41(9769 ...) cubic inches, but in view of the uncertainty referred to, this is rounded off by the Department to

l gallon = 277.420 oubic inches
which is the figure now advised as suitable for use in all
calculations where scientific accuracy is required.

It cannot, however, be too much emphasised that this degree of accuracy has no meaning whatever in ordinary commercial transactions, having regard to the tolerance for error which is admitted on trade measures, as well as to the purely approximate methods used in determining the cubic capacity of a space, the equivalent of which in gallons is being sought. Thus an ordinary one-gallon measure actually in use for trade, would be regarded on inspection by Inspectors of weights and measures as still "correct" if in fact its capacity lay anywhere between the

There is no statutory relationship in Great Britain between the gallon and cubic inch, as each is independently defined on a separate basis, and the conversion factor cannot be obtained directly from the definitions.

Any relationship which is obtained is a calculated one, and is dependent principally upon that particular experimental result for the determination of the density of water which at any given period is considered to be of the greatest trustworthiness. It is, therefore, in any event subject to that degree of uncertainty which is inherent in all experimental results.

The different figures for this ratio which are extant have their origin in experimental results accepted as reliable at different dates, and perpetuated by successive copyings without critical revision.

The ratio: -

l gallon = 277.274 cubic inches
which was, up till recently at least, probably most commonly
quoted in the hand-books, and still used by the Customs
authorities here - appears to be based upon a density of water
quoted in Section 5 of the Act 5 Geo.IV c.74 (1824). While this
no doubt represented the best available knowledge of that date,
it may be remarked that soon afterwards a new standard pound was
created, under the direction of a Committee which characterised
as unreliable the value for the density of water given in the
section mentioned, and therefore ignored it. The section was
repealed in 1876.

The next later figure is that derived from a feot-note in a Order in Council of 28th November, 1889, which leads to the result

Any further communication should be THE ASSISTANT SECRETARY. at the address given opposite. the following letter and number should

ST.8428/81/RJT.

Telephone No. 1 3940 Victoria.

BOARD OF TRADE.

(GENERAL DEPARTMENT).

GREAT GEORGE STREET.

LONDON, S.W.1.

RECEIVED 18DEU FIOED th December, 1931. 18DEC 1931

Sir.

In reply to your letter of the 26th Movember, (17379/31), on the subject of the equivalent of the gallon in subic inches, I am directed by the Board of Treats to enclose for the information of the Secretary of State, memorandum in which the essential points of the question are fully discussed.

It will be seen that the course the which the hours now regard as correct is not the the track the Board of Customs and Excise in assessing design duarges in this country, and the Sepretary of State and, incretors consider it desirable before replying to the Book consult that Department (to which a copy of the is also being sent).

I have the honour to be

211 /

Your obedient Servant.

The Under-Secretary of State. Colonial Office. Whitehall. S.W.1.

A & Carbill

(12) and

17th December

the Kenny Groument duries a reduce

2. It will be observed that it is

primarily for the purpose of computing

customs duties that it is desired to

be glad to receive the of the Board

of Customs and Excise on the correspondence,

It will be much appreciated if an early reply could be sent to this letter.

I am, &c

(Signed) H. T. ALLEN

17ta December

the Kennya Comment desires a ruling

2. It will be observed that it is

primarily for the purpose of computing

customs dities that it is desired to

factor. The S. of S. would therefore

be glad to receive the seem of the Board

of Customs and Excise on the correspondence,

It will be much appreciated if
an early reply could be sent to this letter.

I am, &c

(Signed) H. T. ALLEN

7:37

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Bit. Eastwood 24

Bit. Facilities.

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Sir J. Shuckburgh.

Sir G. Grindle.

Parent. U.S. of S.

DRAFTS pres

THE SECRETARY,

Party. U.S. of S.

Secretary of State.

BOARD OF CUSTOMS AND EXCISE.

(No.2) (No.2)

Colony 4 (with end) and the live of 2.

by the bay. (6)

Downing Street,

28 December 1931

C.D. R 21DEC D 23 · ·

Sir,

I am, etc., to transmit you, to be laid before the Board of Customs and Excise, copies of two despatches and enclosures which have recently been received from th Governor of Kenya regarding the medicine to the equivalent of the Imperial gallon in cubic inches. Copies of these despatches were sent on receipt to the Board of Trade with the request that they would state what is the accepted conversion factor for this purpose in the United Kingdom. memorandum has been received from Brand them in roply of which it is understood that a copy has already been sent to you seeke Board of Trade letter 8.T.2428/31/ R.J.T. of the

Any reply to this Letter should be addressed.

"The Secretary.

Custom House, London, E.C.3."

and not to any particular individual. The following number should be quoted: No 85324/1931.

Failure to comply with these directions may involve delay.

CUSTOM HOUSE

LOWER THAMES STREET

LONDON, E.C.3

RECEIVED 6-JAN 1932 OOL OFFICE

5th January, 1932.

Sir,

With reference to your letter of 28th ultimo, No. 17379/31 I am directed by the Board of Customs and Excise to state. for the information of the Secretary of State, that where storage vessels (e.g. for spirits and beer) are gauged by Officers of this Department the Imperial gallon is taken a equivalent to 277.274 cubic inches. This has been the Straders, and in the absence in any statutory definition of the cubic capacity of the galton, the Board would be most

reluctant to alter to

Storage vessels for hydrogarbon bilt (e.g. petro) Liable to duty in this country are much however, gauged by the Board's Officers. The trider is required to fundament Board with tables of capacity for each vessel ithe computation of which is usually undertaken by an indertaken firm of recognised saugeme, and it is the normal proc to accept these tables as satisfactory for Revenue puri

Kommod (1)

It is not clear from the correspondence enclosed with your letter whether the Customs authorities in Kenya themselves gauge the storage tanks referred to. there would seem to be no reason why they should depart from their usual practice of taking the gallon as equivalent to If, on the other hand, the gauging i 277.274 cubic inches. done by the traders the capacity of the tanks as ascertained by them might, perhaps, be accepted by the Customs.

I am, Sir, Your obedient Servent.

The Under Secretary of State, Colonial Office.

Any reply to this Letter should be addressed:

"The Secretary

Custom House, London, E.C.3."

and not to any particular individual. The following number should be quoted:
No. 85324/1931.

Failure to comply with these directions may involve delay.

CUSTOM HOUSE

LOWER THAMES STREET,

LONDON, E.C.3.

RECEIVED OOL OFFICE

5th January, 1932.

Sir,

With reference to your letter of 28th ultime, No. 17379/3

I am directed by the Board of Customs and Excise to state, for the information of the Secretary of State, that where storage vessels (e.g. for spirits and beer) are gauged by Officers of this Department the Imperial gallon is taken as equivalent to 277.29 cubic trents. This has been the Expractice for very many years. It is accepted generally by traders, and, in the amende of any statutory derinition of the cubic capacity of the gallon, the Board would be imposed reluctant to after it.

Storage vessels for hydrocarbon offs(e.g. petrol liable to duty in this country are mind however, gauged by the Board's Officers. The trade is required to tuning Board with tables of especity for each vessel like computation of which is usually undertake of an independent of the firm of recognised gauges), and he is the normal profit to accept these tables as satisfactory for Revenue purposes.

It is not clear from the correspondence enclosed with your letter whether the Customs suthorfities in tenys themselves gauge the storage tanks referred to. If the there would seem to be no reason why they should depart from their usual practice of taking the gallon as equivalent to 277.274 cubic inches. If, on the other hand, the gauging if done by the traders the capacity of the tanks as accertained by them might, perhaps, be accepted by the Customs.

I am, Sir,

Your obedient Servent,

The Under Secretary of State, Colonial Office.

James (1)

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provided by hand There are normally computed by independent from of recognized ganger ganger o futer desparch fleors & today ai mail.

K1333121 0.00 CO Sal 1.132 0.30 1.132 No. 3 40m 600. no 2 Road Me trans Mr. Frestab alm Mr. Parlinson ag sulof hack arrive that ment Tomlinson. for Glaselin) Sir C. Bottomley. conect figure is 277 hourt Sir J. Shuchburgh. Permt. U.S. of S. Parly. U.S. of S. 42# but inspections of Secretary of State. weight & measures accept DRAFT. CACLE anything between 280 fromt Coromor for com 8.9# and 27 = print/ 694 @ Sainy duly 29 Dec Suzo Bout Outons above West ty blu 277 hint 274 as in care fu hydrocarbon equinlent but (wat) they ampt figure of who way

for kenya - Tel. 8 - 4//30 8TATUTE possible reply to my despated of 10 for November. No 637 --Board of Customs of Excise -Nates the practice of the Dept, which they would be most reductant to ? or in of his. The Certain paper was most lightful and rang team of justander . Partimo I have : all aletas \ 6.1.32 of tanks. 10 Gos Keya, Tel No3 Sand By his mal to Gov 24 (or /c's Harmel and q) Lin Mar Rist Notes Decedents In famut to note. Theretandan sylings may but back to a copy t Castoms letter if we had had Sent them of a copy of No 9 of 4. inteller 60/3 charce

the B. of T. as proposed. 3 % B/T- wfo 192 = cms - 10/12/ 21 Mare - 17/12/31 Transmit a memorandiam in which the essential points of the greation are fully discussed Points out that the equivalent which 3/1 reprid as coners is not the Same as used of the Board of Custom FExcise The Shele Co. we the figure 277.462879. C. inho The Customs in Ea. & in this county we the freque Re B17 arrive las 277.420/ is about as hear ? a conect pieme as one can get. at by emphasize that any figure must be only an approximate one, as some of

to pass an munitive . for their proposes about according is not constial, whose for Curtous computation on the other hand accuracy is of considerable importance. as -t = for the laten purpose that kenge wont to know the const (june, or do I think certainly refer to the Customs. Two Ifto his.

- Fairmit

Cyrr which for a tellie refully will a had bottom Block; it may fountain teleprophing when

(by.). Ald he this crown when it is

EN UNDER STATUTATION of hade ([& 5 Tout mel) . A Bone - 2000 1 to for 842 (/c 40 mel + 5) A/129 DEC 1931

Gov. Kenya 27th October, 1931 Trs. copies of corre, with the Shell Company of Tas. copies of correr with the Shert company of Africa, Ltd. relating to the conversion factor to be used in determining the cubic capacity of the Imperial Gallon, and asks for a ruling as to the figure to be used. Gov. Kenya 10th November 1931 Trs. copies of further corres and asks if the ruling may be communicated by telegram. M MSwith I terink this Ih. really have been regt General, but I do not deleg to have the regt allered now Arming that S.D. have no ruling on the subject almost & Mich I have not -transpled to find out - you will 80 (tis?) in did with to Popp os in The? To By - must be very buy just at posent & I sont timb We can reasonally ask for annow the 25 =. can find no nots of I have no resolvedin gother having arisen begins. I would refer to