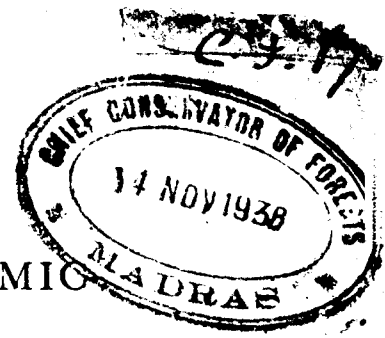


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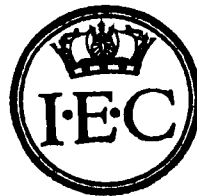


IMPERIAL ECONOMIC
COMMITTEE

C.S. 1849

AN INDEX OF THE MINOR FOREST PRODUCTS OF THE BRITISH EMPIRE

15/10/36 F.



LONDON 1936
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THE IMPERIAL ECONOMIC COMMITTEE
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IMPERIAL ECONOMIC COMMITTEE

AN INDEX OF THE MINOR FOREST PRODUCTS OF THE BRITISH EMPIRE



LONDON 1936

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THE IMPERIAL ECONOMIC COMMITTEE
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P R E F A C E

In a resolution passed at the Imperial Conference of 1930, the Research Committee of the Conference recorded the opinion that in order to promote the use of the minor forest products of the Empire and to develop the trade in them between Empire Countries, it was desirable that the various Governments of the Empire should take such steps as are practicable to carry out a survey of their own resources in those products. This should "as far as possible conform to a common plan so as to permit the proper correlation of the data by a suitable central body, including in its membership representatives of the various Governments concerned, of the Imperial Institute, and of other organisations closely associated with the investigation of these products".

In the autumn of 1931, His Majesty's Government in the United Kingdom proposed that the work should be referred to the Imperial Economic Committee under its general terms of reference. This proposal was accepted by all the Governments in the Empire, although certain of them stated that they were not prepared to undertake any additional expenditure for the purpose.

The Imperial Economic Committee then appointed the Minor Forest Products Committee, with a membership constituted on the lines laid down in the Resolution of the Imperial Conference, to carry out the work within the conditions imposed by Governments. The members of the Committee were as follows:—

Mr. A. J. Gibson (<i>Chairman</i>)	India
Mr. Fraser Story, O.B.E.	United Kingdom
Mr. Frederic Hudd (<i>a</i>)	Canada
Mr. F. C. Faraker	Australia
Mr. S. C. Manhire	New Zealand
Mr. F. J. du Toit (<i>b</i>)	South Africa
Mr. C. J. O'Donovan (<i>c</i>)	Irish Free State
Mr. W. Piggott	Newfoundland
Mr. B. F. Wright	Southern Rhodesia
Mr. G. L. M. Clauson, C.M.G., O.B.E.	Colonies and Protectorates
Mr. Harold Brown, O.B.E.	Imperial Institute
Mr. F. N. Howes, D.Sc.	Royal Botanic Gardens, Kew
Sir Ralph S. Pearson, C.I.E.	Late Director of the Forest Products Research Laboratory, Princes Risborough

(*a*) In succession to Mr. Harrison Watson

(*b*) In succession to Mr. Dimond

(*c*) In succession to Dr. Kiernan

After a preliminary examination of the task, the Minor Forest Products Committee advised that in view of the diversity of minor forest products and the difficulty (if not the impossibility) of obtaining complete statistical information on each and all of them without extensive local investigation which, on financial grounds, was out of the question, an attempt to produce a full statistical survey would fail. At the same time much information on these diverse products existed, but was only to be found in scattered reports and publications. With the co-operation of officers overseas a classified index could be compiled which would give for each of the products listed an indication of its relative economic importance in the countries concerned, a summary of trade figures, and a reference to the chief publications dealing with it. Such a compilation should be useful to merchants, forest officers and administrators. It would provide them with immediate information in a handy form; it would direct them without loss of time to the principal sources of information on specific products in which they were interested; it might also at times be helpful to forest officers when considering the economic possibilities of some product of the forest as yet unused.

The Imperial Economic Committee approved this proposal and adopts the *Index of the Minor Forest Products of the British Empire* prepared by the Committee and published herewith.

In so doing, the Imperial Economic Committee wishes to express its appreciation of the work done by the Minor Forest Products Committee, and in that connection would especially mention Mr. A. J. Gibson (the Chairman), Mr. F. N. Howes, D.Sc., of the Royal Botanic Gardens, Kew, and Mr. Harold Brown, O.B.E., of the Imperial Institute, on whom fell by far the largest share of the detailed work. Mr. Gibson, in particular, gave very freely of his time and experience to ensure that the material included was comprehensive, carefully selected and accurate, and presented in a form both convenient and useful.

The Committee has learned with deep regret of the sudden death of Mr. Brown, which occurred while the work was approaching completion and before he could append his signature to the Report.

Signed, on behalf of the Imperial Economic Committee:

F. L. McDougall
Chairman

March, 1936

INTRODUCTION

At the outset, the Minor Forest Products Committee realised that if the Index, on the lines proposed, was to attain a full measure of usefulness to those whom it was intended to serve, it must be based on a foundation of local knowledge which only officers overseas could supply. The Committee therefore suggested, and the Imperial Economic Committee agreed, that the work should be conducted on the following plan:—

(i) The tabulation of the minor forest products of the Empire—a minor forest product being understood as any product of the natural forest, other than timber and its derivatives;

(ii) The compilation in each country of the Empire of lists of the minor forest products known to be available, distinguishing those in which an export trade has been established from those which are of potential or only slight economic importance for the countries concerned;

(iii) A scrutiny by the Minor Forest Products Committee of the lists so compiled, and their correlation and tabulation in a serviceable form.

To simplify the reference to be made to officers overseas, the Committee prepared, from records available in London, a preliminary list of the minor forest products in each country, together with statistical data and a short bibliography of the chief books and reports in which the various products are described. These lists were despatched to the appropriate countries overseas, and the authorities were asked to examine them and complete them by adding such further information as they considered desirable, and in particular by assigning to each product a symbol which would denote its economic classification in one of the four classes into which the commodities were to be assorted.

It is desired to express the cordial thanks of the Committee to the officers overseas who took part in elaborating these preliminary lists, for their ready co-operation in the work.

The four economic classes and the symbols by which they are denoted in the work as finally presented by the Committee are as follows:—

A.—This denotes that an export trade in the commodity has already been established.

B.—This denotes that while at present there is only a local trade, there is also, in the opinion of local officers, a possibility that an export trade might develop.

C.—This denotes that any existing trade is local and, in the opinion of local officers, unlikely to develop into an export trade.

D.—This denotes that the commodity is at present considered to be of very slight value only, and the possibilities of economic use very small.

It should be understood that the economic classification in each case is according to the importance of the commodity in the country concerned. A commodity which in one country would be classified as "A" may in another country be classified as "B", "C" or "D".

In the editing of the returns, and particularly in the completion of the bibliography, the Committee is very much indebted to certain members of the Staff of the Royal Botanic Gardens, Kew, and of the Imperial Institute, who have been unsparing in their efforts to assist the Committee in every way.

Arrangement of the Index

In its final form, the material has been arranged into the following groups:—

- | | |
|-----------------------|--------------------------|
| (i) Drugs and Spices; | (v) Gums and Resins; |
| (ii) Dyes; | (vi) Oils and Oilseeds; |
| (iii) Essential Oils; | (vii) Tanning Materials; |
| (iv) Fibres; | (viii) Miscellaneous. |

The commodities in each group are arranged alphabetically and then by economic classes. Where a commodity is available in more than one country, those in which it falls into Class "A" come first. The bibliography is divided into the same eight groups, each of which is arranged alphabetically. In an appendix, alphabetical lists are given of all the commodities, species and countries mentioned. The arrangement throughout is thus in the form of a classified index.

The starting point of the reader may be either the commodity or the botanical name. In either case the appropriate alphabetical list will direct him to the pages in the Index where the full information is set out. This comprises for each commodity the various species from which it is derived, the countries in which they are found, the degree of commercial development reached in the countries concerned, and a numerical reference to the sectional bibliography given at the end of the Index. If the starting point is the botanical name, use of the references in the alphabetical list of species will show the commodities derived from them and the countries where they occur. Again, if it is desired to find what minor forest products are available in any particular Empire country, the alphabetical list of countries will provide the necessary references.

The bibliography has been arranged alphabetically by sections, on the same plan as in the main Index. Although books which deal with a variety of commodities may be listed in more than one section, general reference is thus facilitated, since each section is complete in itself. If, however, the bibliography of a specific commodity is required, it should be sought under that commodity in the main Index, where references will be found, indicated by section letter and number, in Column 4.

It will, of course, be understood that the bibliography is not intended to be exhaustive. Such an attempt would be impracticable in a work of this kind. A full bibliography of Lac and Shellac, for example, would involve a list of over eight hundred references. The sectional bibliographies have therefore been limited to the principal publications dealing with the commodities concerned, and relate chiefly to those commodities which are classified as "A" or "B" in Column 3 of the Index.

It is also to be noted that the trade information in Column 2 is in most cases confined to commodities classified as "A" in Column 3. Minor forest products are not infrequently grouped together in official returns, and export figures for particular products are not obtainable. The symbol "n.s.c." has therefore been used in Column 3 to denote that the product in question is "not separately classified" in the trade returns.

In the spelling of botanical names, initial capital letters have not been used for specific epithets, but only for the generic name. This has been done in the interests of simplicity, and is in keeping with the practice now generally adopted in lists of this kind.

The Government of the Anglo-Egyptian Sudan has provided a list of the minor forest products of that territory on the same plan as that used in the Index. This list is given in Appendix I.

Scope of the Index

A minor forest product is generally understood to be any product of the natural forest, other than timber and its derivatives. The natural forest is thereby distinguished from a commercial plantation, and commodities which in any country are the product of such plantations have therefore been excluded from the Index. The same commodity, however, which in one Empire country is a minor forest product may be developed in another Empire country (or elsewhere) on a much larger scale as a cultivated product. In such cases the Index necessarily does not give a complete picture of the total resources of the Empire for that commodity. An outstanding example is Wattle Bark (*Acacia mollissima*). This is listed in the Index as a minor forest product of Australia. As is well known, the chief source for *Acacia mollissima* in the Empire is now the Union of South Africa, where the cultivation of Wattle Bark is an important industry, the average annual value of the export (Bark and Extract) for the years 1932-34 being well over half a million sterling. Other examples are Carob Bean, Cinnamon Bark, Citronella, Derris Root, Gambier, Cutch, Kapok, Kola, and Palm Oil.

For the purposes of the present Index the Committee considered that this difficulty, inherent in any consistent list of minor forest products, would be adequately met if, in each of the introductions to the sections into which the

Index is grouped, attention were drawn to the more important instances in which a commodity listed in the section as a minor forest product is also produced elsewhere as a cultivated crop.

While examining the material prepared by the Canadian authorities, the Committee was impressed with the value of the information given on the subject of the Destructive Distillation of Wood and its products. With great reluctance the Committee felt bound to come to the conclusion that this subject, directly related as it is to Timber, which is a major product of the forest, falls definitely outside the scope of the Index. Reference to the available literature showed that Canada is the only country in the British Empire in which the destructive distillation of wood has been made the subject of detailed study and attained some measure of success as an industry. The potentialities in Canada are great. In other Empire countries, notably Australia, British Guiana, British North Borneo, Cyprus, India, Kenya, Malaya, Nigeria, Uganda and the Union of South Africa, the destructive distillation of wood is centred on the recovery and utilization of only one product, namely, charcoal.

As part of a series of special bibliographies concerned with the forest products of Canada, the Forest Service of the Department of the Interior has already issued a *Review of the Literature of Soft Wood Distillation*. The Committee considers that if the material which is necessarily excluded from the present Index could be separately published either uniform with the "Review" referred to, or in more permanent form, it would be of value to forestry officers throughout the Empire.

The observance of a common plan throughout the work has made it necessary to condense or omit some of the information supplied by producing countries. To mention one instance, it has been found impossible to incorporate the detailed account, covering over 300 species, of the medicinal plants of Nigeria and their particular uses, prepared by the Nigerian Forest Service. In order that full use may be made of such material, it is recommended that the original returns received from authorities overseas shall be lent to the Imperial Institute and to Kew, for the extraction of any information that may be desired, and then passed to the Imperial Forestry Institute at Oxford for permanent record.

A. J. Gibson (*Chairman*)
Fraser Story
Frederic Hudd
F. C. Faraker
S. C. Manhire
F. J. du Toit

C. J. O'Donovan
W. Piggott
B. F. Wright
G. L. M. Clauson
F. N. Howes
Ralph S. Pearson

February, 1936

DRUGS AND SPICES

A large number of drugs and drug-plants are derived as forest products, and of these some are extensively used in modern medicine. Among the more important might be mentioned *Nux Vomica* (India), *Cascara* (Canada), *Strophanthus* (East Africa), *Aloes* and *Buchu* (South Africa), all of which appear in the export lists of their respective countries. Others, also exported and well known, are *Cascarilla* and *Canella Bark* (Bahamas), *Quassia* (Jamaica), *Kola* (West Africa and the West Indies—introduced) and the *Calabar Bean* (West Africa). Further products, perhaps less well known, and in many instances not "official", such as *Bearberry leaves* (Canada), may be exported to European countries and used largely in herbal remedies and by homœopaths. In some instances where a drug plant is recorded as exported, it may be consumed entirely or almost entirely in neighbouring countries and not exported to the usual European markets. It will be noted that the export of *Costus* or *Kuth root* from India is mostly to China. *Borneo Camphor*, exported from North Borneo and Sarawak, is consumed in Asiatic countries, particularly China and Japan, and not in Europe or America.

A large number of the commodities or medicinal plants that are listed below are of course not recognised drugs in European medicine, and are at present of local interest or value only. However, it should be remembered that many of the native medicinal plants of other countries, particularly in the tropics, are at present imperfectly known, and little or no investigation of their properties has been carried out. It does not seem unreasonable to suppose that some of them may eventually lead to additions to our pharmacopœias. Certain now well established drugs have not been in use in medicine for a very long period, and first attracted attention through the use made of them (e.g. as arrow-poisons), by primitive peoples. Research on such plants is continually being carried on. Recently it has been shown that the seeds of *Strophanthus emini* from Tanganyika are similar therapeutically and in chemical composition to those of *Strophanthus kombe*, which hitherto has been the only official source of strophanthin (*Quarterly Journal of Pharmacy and Pharmacology* VIII, No. 1, 1935). Another plant which is said to give promise, as a result of recent work, of being of value in medicine (for bilharzia and guinea worm) is *Balanites aegyptiaca*, a shrub or small tree widely distributed in Africa.

From the history of commercial drugs it is evident that the sources of supply are not always to be regarded as constant, and one country may supplant another as the chief supplier of some particular drug in the course of time. How marked such a change may be is well illustrated by the history of *Quinine* or *Cinchona*. It is quite conceivable that still further changes in sources of supply, even if less notable and dramatic, may occur at some future time. Russian Turkestan has long been the only commercial source of *Santonin*.

In recent years, however, Santonin has been shown to be present in appreciable quantity in certain Indian species of *Artemisia*, and commercial extraction from Indian material has already been undertaken, although on a relatively small scale. To what extent this may develop is a question which the future must decide.

Among minor forest products the number of spices is small—spices in general being derived mostly from cultivated plants. They have been included with drugs here because so many, in fact most spices, are used to some extent for medicinal purposes. Admittedly, with some spices this use may be small as compared with the extent to which they are used purely as a spice or condiment. Spices are used less as drugs at the present time than in days gone by, and occupy perhaps a less important position in commerce. However, apart from their domestic uses they are of importance and value to the food manufacturer and in the distillation of oils used for flavouring essences and perfumes.

A number of the products listed in this section are, or have been, cultivated in some countries, although production on a commercial scale has not necessarily resulted. Among these the following may be mentioned. Aloes are cultivated in parts of the West Indies, commercial grades falling into three main classes, East African, South African and West Indian. Chaulmoogra, Cinnamon, Pimento and Kola have been established successfully in numerous parts of the tropics, Ceylon being now an important source of supply for Cinnamon, and Jamaica for Pimento. Cascara has been found to grow well under sub-temperate and sub-tropical conditions in various countries, including East Africa. Croton is cultivated in India and Ceylon, and Costus is cultivated in parts of India (*The Indian Forester* LXI, Nos. 2 and 9, 1935). Colocynth has a wide distribution in North Africa and Syria, and is cultivated in southern European countries and the north western provinces of India.

(i) DRUGS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACONITE ROOT <i>Aconitum columbianum</i>		D	D.53	CANADA
AFRICAN BARK <i>Crossopteryx kotschyana</i>		D	D.55	NIGERIA
AFRICAN CUCUMBER <i>Momordica charantia</i>		D	D.55	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ALOEES Aloe spp.	Cwt. £ 1932 7,569 8,025 1933 7,849 9,174 1934 7,308 9,987 Large supplies available	A	D.12, 36	SOUTH AFRICA
ALSTONIA BARK <i>Alstonia scholaris</i> <i>Alstonia constricta</i>	Large quantities available	C D	D.12, 34, 36 D.36, 54	INDIA AUSTRALIA
AMERICAN WHITE-HELLEBORE <i>Veratrum</i> sp.	n.s.c.	A	D.12, 36, 54	CANADA
ASAFOETIDA <i>Ferula tingitana</i>		D	D.56	PALESTINE
BALANITES FRUITS <i>Balanites aegyptiaca</i>	No production or trade hitherto, but medical interest aroused, and export trade might develop	B	D.5, 55	TANGANYIKA
BALM OF GILEAD BUDS <i>Populus tacamahaca</i> (<i>Populus balsamifera</i>)		B	D.2, 35	CANADA
<i>Populus trichocarpa</i>		C	D.42	CANADA
BARBERRY <i>Berberis</i> spp.		C	D.54	CANADA
BEARBERRY <i>Arctostaphylos uva-ursi</i>		D	D.2, 54	CANADA
BENGAL KINO <i>Butea frondosa</i>	n.s.c.	A	D.34, 36	INDIA
BETH ROOT <i>Trillium</i> spp.		D		CANADA
BIRCH TAR <i>Betula</i> spp.		C	D.12	CANADA

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
BLACK HAW (ROOT BARK) <i>Viburnum prunifolium</i>			C	D.54	CANADA
BLACK SNAKEROOT <i>Cimicifuga racemosa</i>	n.s.c.		A	D.38, 47	CANADA
BLOOD ROOT <i>Sanguinaria canadensis</i>			C	D.12, 54	CANADA
BORNEO CAMPHOR <i>Dryobalanops aromatica</i>	Catties* 1931 500 1932 400 1933 300	£ 2,216 1,492 1,008	A	D.7, 39	NORTH BORNEO
<i>Dryobalanops aromatica</i>	Catties* 1932 55 1933 47 1934 85	\$ 1,087 911 1,454	A	D.10	SARAWAK
<i>Dryobalanops aromatica</i>			D	D.40	MALAY STATES AND STRAITS SETTLEMENTS
BUCHU LEAVES <i>Barosma</i> spp.	Cwt. 1932 1,452 1933 1,690 1934 1,561	£ 3,489 5,048 5,256	A	D.12, 21, 36, 48	SOUTH AFRICA
BUCHU OIL <i>Barosma</i> spp.			B	D.37	SOUTH AFRICA
CALABAR BEAN <i>Physostigma venenosum</i>			D	D.36, 55	GOLD COAST
<i>Physostigma venenosum</i>			D	D.36, 55	NIGERIA
<i>Physostigma venenosum</i>	Tons 1933 40 No local trade. Exports occasionally	£ 549	D	D.36, 55	SIERRA LEONE

* One Cattie=1.33 lb.

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
CALABASH NUTMEG <i>Monodora</i> sp. (See under Spices)					
CANELLA BARK <i>Canella alba</i>	n.s.c.		A	D.12, 36	BAHAMAS
CASCARA <i>Rhamnus purshiana</i>	n.s.c.		A	D.13, 14, 36, 47	CANADA
CASCARILLA BARK <i>Croton eleuteria</i>	Tons 1932 11 1933 12 1934 22	£ 1,464 946 1,644	A	D.36, 54	BAHAMAS
CASSIA LEAVES <i>Cassia</i> spp.			D	D.36, 55	NIGERIA
CHAULMOOGRA OIL <i>Taraktogenos kurzii</i> and <i>Hydnocarpus wightianus</i> <i>Hydnocarpus wightianus</i>	n.s.c.		B	D.3, 18, 20	INDIA
			D		FIJI
CHAULMOOGRA SEED <i>Hydnocarpus woodii</i>	Fair quantities available		C	D.25	NORTH BORNEO
CINNAMON BARK <i>Cinnamomum zeylanicum</i> (See under Spices)					
COCCULUS INDICUS <i>Anamirta cocculus</i>	Very little used locally, but small quantities are exported		B	D.18, 34, 36	INDIA
COLOCYNTH <i>Citrullus colocynthis</i>			D	D.36, 54	PALESTINE
COPAIBA BALSAM <i>Daniellia</i> spp.			D	D.55	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
COPAIBA OIL <i>Copaifera officinalis</i>	Mainly to China ; n.s.c.	D	D.52	TRINIDAD AND TOBAGO
COSTUS ROOT (KUTH) <i>Saussurea lappa</i>		A	D.20, 46	INDIA
CRAMP BARK <i>Viburnum opulus</i>		C	D.54	CANADA
CROTON OIL <i>Croton tiglium</i>	n.s.c.	A	D.20, 36	INDIA
DELPHINIUM <i>Delphinium spp.</i>	n.s.c.	D	D.54	CANADA
DUMELLA <i>Trichosanthes cucumerina</i>		D	D.22, 57	CEYLON
ELDER FLOWERS <i>Sambucus canadensis</i>		D		CANADA
EPHEDRINE <i>Ephedra spp.</i>	n.s.c.	A	D.31, 33, 34	INDIA
GHATTI GUM <i>Anogeissus latifolia</i> <i>Anogeissus latifolia</i>	n.s.c.	A	D.18, 20, 36 D.36, 57	INDIA CEYLON
GINSENG <i>Panax quinquefolium</i>	n.s.c. ; considered worth cultivation; much valued in China	A	D.43, 54	CANADA
GOLDEN SEAL <i>Hydrastis canadensis</i>	n.s.c.	A	D.36, 54, 58	CANADA
GOLI <i>Caloncoba echinata</i>		C		SIERRA LEONE
GUINEA GRAINS <i>Aframomum spp.</i> (See also under Spices)		D	D.36, 55	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
HORSEMINT <i>Monarda punctata</i>	n.s.c.	D		CANADA
INDIAN TOBACCO <i>Lobelia inflata</i>		A	D.36, 54	CANADA
JUNIPER <i>Juniperus communis</i>		D	D.36	CANADA
KOLA <i>Cola spp.</i>		A	D.17, 44, 55	GOLD COAST
	Cwt. £			
	1930 75,369 138,322			
	1932 7,101 6,789			
	1933 3,853 2,808			
	1934 3,188 1,224			
	Nearly all to Nigeria, Dahomey and French Togoland			
KOLA NUTS <i>Cola acuminata</i>	Cwt. £	A	D.55, O.66	ST. LUCIA
	1932 155 110			
	1933 123 108			
	1934 140 121			
<i>Cola acuminata</i>	Cwt. £	A	D.55, O. 66	JAMAICA
	1932 1,678 569			
	1933 3,900 1,664			
	1934 2,339 1,269			
<i>Cola spp.</i>	Cwt. £	A	D.9, 55	NIGERIA
	1929 6,145 24,343			
	1932 1,012 1,508			
	1933 2,431 2,406			
	1934 2,871 693			
<i>Cola spp.</i>	Cwt. £	A	D.6, 55	SIERRA LEONE
	1929 62,545 266,422			
	1932 41,708 41,373			
	1933 36,236 43,656			
	1934 29,206 18,304			
<i>Cola acuminata</i>	n.s.c. since 1931			
KURCHI BARK <i>Holarrhena</i> anti- <i>dysenterica</i>	Large quantities available	B	D.55, O.66	GRENADA
		B	D.20, 34	INDIA

18				
Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
LABRADOR TEA Ledum palustre Ledum greenlandicum	Diverse and uncertain production	D		CANADA
LIGNUM VITAE BARK Guaiacum officinale	n.s.c.	A	D.36, 52, 54	BAHAMAS
LONG PEPPER Piper longum (See under Spices)				
MALE FERN (RHIZOME) Dryopteris filix-mas		D	D.54	CANADA
MALLOW ROOTS Althaea officinalis		D	D.12	PALESTINE
MATUNGURU Aframomum sp. (See under Spices)				
MAUBI BARK (MABI) Colubrina reclinata	(Bags of 90 lb.) 1931 2,179 1932 2,383 1933 99	A	D.23	LEEWARD ISLANDS
MORINDA ROOTS Morinda lucida		C	D.55	NIGERIA
MTONGA Strychnos sp.		C		ZANZIBAR
NEEM Azadirachta indica (Melia azadirachta)		C	D.22	CEYLON
NEEM OIL Azadirachta indica (Melia azadirachta)	Large quantities available	B	D.20, 34	INDIA
NEW JERSEY TEA Ceanothus americanus		B	D.54	CANADA

19				
Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
NUX-VOMICA Strychnos nux-vomica	1933 Cwt. 20 1934 n.s.c.	A	D.20, 36, 57	CEYLON
Strychnos nux-vomica	1931-32 Cwt. 20,789 1932-33 19,978 1933-34 59,058 Mainly to U.S.A.; U.K., and Netherlands	A	D.1, 4, 20	INDIA
OCIMUM ROOT Ocimum viride		C	D.55	NIGERIA
OLIVER BARK Cinnamomum oliveri		D	D.36	AUSTRALIA
PHYSIC NUT Jatropha curcas		B	D.55	NIGERIA
PICRALIMA SEEDS Picralima klaineana		D	D.55	NIGERIA
PIMENTO Pimenta officinalis (See under Spices)				
PODOPHYLLUM (MAY APPLE) Podophyllum peltatum	n.s.c.	A	D.2, 36, 47	CANADA
PODOPHYLLUM ROOTS (INDIAN) Podophyllum emodi	Large quantities available in Kashmir	B	D.19, 20, 34	INDIA
PRICKLY ASH Zanthoxylum americanum		C	D.54	CANADA
PURGING FISTULA Cassia fistula 33381	n.s.c.; small	A	D.20, 34	INDIA

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
QUASSIA <i>Picraena excelsa</i>	1932	Cwt. 4,899	£ 1,258	A	D.36, 52	JAMAICA
	1933	5,744	1,599			
	1934	9,008	2,578			
SAGE LEAVES <i>Salvia triloba</i>				D	D.56	PALESTINE
SALICIN (See WILLOW BARK)						
SANTONIN <i>Artemisia</i> spp.	n.s.c.; about 100 tons of <i>Artemisia</i> leaves, etc., produced annually in Kashmir			A	D.20, 29, 30	INDIA
SARSAPARILLA <i>Smilax ornata</i>				D	D.36	BRITISH HONDURAS
SASSAFRAS ROOT <i>Sassafras officinale</i>	n.s.c.			A	D.2, 12, 36	CANADA
SASSY BARK <i>Erythrophleum guineëse</i>				C	D.36, 55	NIGERIA
<i>Erythrophleum guineëse</i>				C	D.36	SIERRA LEONE
<i>Erythrophleum guineëse</i>				D	D.44, 55	GOLD COAST
<i>Erythrophleum guineëse</i>				D	D.36	ZANZIBAR
<i>Erythrophleum guineëse</i>						
SCAMMONY ROOTS <i>Convolvulus scammonia</i>				D	D.36	PALESTINE
SECURIDACA ROOT <i>Securidaca longipedunculata</i>				D	D.55	NIGERIA
SENEGA ROOT <i>Polygala senega</i>	1932	Cwt. 1,752	\$ (000) 59	A	D.2, 36, 47	CANADA
	1933	3,080	120			
	1934	3,025	95			

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
SIMARUBA BARK <i>Simaruba</i> spp.				D	D.36	BRITISH GUIANA
SLIPPERY ELM (BARK) <i>Ulmus fulva</i>				C	D.54	CANADA
SODOM APPLE <i>Calotropis procera</i>				D	D.36, 55	NIGERIA
SQUILL <i>Urginea maritima</i> (<i>Urginea scilla</i>)				D	D.56	PALESTINE
STROPHANTHUS SEED <i>Strophanthus kombe</i>	1932	lb. 7,601	£ 1,140	A	D.8, 36	NYASALAND
	1933	17,521	2,628			
	1934	9,610	1,441			
<i>Strophanthus eminii</i>	n.s.c.; export negligible if any; may develop; plants plentiful			B	D.51	TANGANYIKA TERRITORY
<i>Strophanthus</i> spp.				B	D.55	NIGERIA
SUMAC (FRUIT) <i>Rhus glabra</i> and <i>R. typhina</i>				D	.	CANADA
TAMARIND <i>Tamarindus indica</i> <i>Tamarindus indica</i>	n.s.c.; large local trade			A C	D.20 D.20, 57	INDIA CEYLON
TRICHILIA BARK <i>Trichilia emetica</i>				D	D.55	NIGERIA
UVARIA ROOT <i>Uvaria</i> spp.				C	D.55	NIGERIA
WAHOO (BARK) <i>Euonymus atropurpureus</i>				C	D.54	CANADA
WALTHERIA <i>Waltheria indica</i> (<i>Waltheria americana</i>)				C	D.55	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
WHITE HELLEBORE (See AMERICAN WHITE HELLEBORE)				
WILD MELON <i>Citrullus vulgaris</i>		D	D.36, 55	NIGERIA
WILD PEPPER <i>Piper</i> spp.		D	D.55	NIGERIA
WILLOW BARK (SALICIN) <i>Salix</i> sp.		B	D.36, 54	CANADA
WITCH HAZEL BARK <i>Hamamelis virginiana</i>	n.s.c.	A	D.36, 54	CANADA
WITCH HAZEL (LEAVES) <i>Hamamelis virginiana</i>	n.s.c.	A	D.36, 54	CANADA
XIMENIA <i>Ximenia americana</i>		D	D.55	NIGERIA
XYLOPIA SEEDS <i>Xylopi aethiopica</i> (See under Spices)				
YOHIMBINE (ALKALOID) <i>Pausinystalia yohimba</i>		B	D.36,55	NIGERIA
YOHIMBINE <i>Pausinystalia yohimba</i>		C	D.12, 36,	GOLD COAST

(ii) SPICES

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CALABASH NUTMEG <i>Monodora</i> spp. <i>Monodora</i> spp. <i>Monodora</i> spp.		C D D	D.44, 55 D.36,55 D.55	GOLD COAST NIGERIA SIERRA LEONE
CINNAMON BARK <i>Cinnamomum zeylanicum</i>	Cwt. Rs. 1928-29 121 9,395 1931-32 94 5,650 1932-33 40 1,767 1933-34 58 2,721	A	D.20, 49, 50	INDIA
GUINEA GRAINS <i>Aframomum granum-paradisi</i> <i>Aframomum melegueta</i> <i>Aframomum</i> spp.		C C	D.50, 55 D.50, 55	GOLD COAST SIERRA LEONE
<i>Aframomum</i> spp.		D	D.36, 55	NIGERIA
LONG PEPPER <i>Piper longum</i>	n.s.c.	A	D. 18,20, 34, 50	INDIA
MATUNGURU <i>Aframomum</i> sp.		D		ZANZIBAR
PIMENTO <i>Pimenta officinalis</i>		B	D.49, 50	BRITISH HONDURAS
SYZYGIUM <i>Syzygium guineense</i>		D	D.55	NIGERIA
XYLOPIA <i>Xylopi aethiopica</i> <i>Xylopi aethiopica</i>		C C	D.36, 55 D.44, 55	NIGERIA SIERRA LEONE
XYLOPIA SEEDS <i>Xylopi aethiopica</i>		D	D.44, 55	GOLD COAST

DYES

Vegetable dyes are of considerably less importance now than formerly, owing to the developments that have taken place in the manufacture of synthetic dye materials. In the colouring of articles of food, the natural dyestuffs are well suited on account of their harmless nature, and it is in this sphere that several are regularly employed. Many of the vegetable dyes which have been extensively used in the past, such as Indigo, Madder and Woad, have now become quite obsolete or are very little used. Others, however, are still of commercial importance and in every day use. These include such dyes as Logwood, Fustic, Sappan or Brazil Wood, all of which are to be regarded as minor forest products. Of these, Logwood is the best known and most extensively used. A variety of different colours may be obtained from it by different chemical treatment. Its chief use is in the dyeing of woollen goods to various shades of blue. It is also employed in making inks, and by calico printers and hat dyers. The fine black silkiness of "top hats" is said to be due in part at least to the use of this dye. Other uses for the wood or extract are in the colouring or sophistication of wines and as a mild astringent in medicine.

Most of the dyes and dye-plants that are listed below are of local value only and are not exported for use in other countries. Nevertheless some are extensively used in local dyeing, as for instance "Yoruba" indigo (*Lonchocarpus*) in parts of West Africa, and the "Marking Nut" (*Semecarpus*) in some areas of India.

Certain of the dye-plants mentioned here are cultivated in some countries. Logwood, a native of central America, has been introduced to many parts of the tropics and has become quite naturalised in some instances. It is particularly prevalent in parts of Jamaica, Cuba, Haiti and Santo Domingo. Anatto is another tropical American species which is now widely distributed throughout the tropics and is quite naturalised in some areas. Certain of the indigenous dye-plants of India, such as "Jack" and "Al" are cultivated locally, and the same is true of Yoruba Indigo in West Africa.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACACIA DYE Acacia arabica		C	Dy.18	NIGERIA
AL Morinda sp.		C	Dy.2	INDIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ALKANET ROOTS Alkanna tinctoria Anchusa officinalis		D D	Dy.19 Dy.19	PALESTINE PALESTINE
ANATTO Bixa orellana		B	Dy.12, 14, 18	NIGERIA
ANOGEISSUS DYE Anogeissus schimperi		D	Dy.12, 14, 18	NIGERIA
ASPERUGO ROOTS Asperugo procumbens		D		PALESTINE
BARWOOD Pterocarpus osun and Pterocarpus erinaceus Pterocarpus spp.		C C	Dy.12, 14, 18 Dy.8	NIGERIA SIERRA LEONE
BAUHINIA DYE Bauhinia reticulata		D	Dy.12, 14, 18	NIGERIA
BEARBERRY LEAVES Arctostaphylos uva-ursi		D		CANADA
BENGAL KINO Butea frondosa		C	Dy.2	INDIA
BISHOP WEED Ammi visnaga		D	Dy.19	PALESTINE
BLOOD ROOT Sanguinaria canadensis		C	D.12, 54	CANADA
BLUEBERRY FRUIT Vaccinium sp.	n.s.c. under dyes. Figures here given are for exports as Food Cwt. \$ (ooo) 1934 31,161 197	—		CANADA
BOMBAX DYE Bombax spp.		D	Dy.12, 14, 18	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CAMWOOD Baphia nitida		C	Dy.8, 18	SIERRA LEONE
Baphia nitida and Pterocarpus soy-auxii		C	Dy.12, 14, 18	NIGERIA
CATECHU OR CUTCH Acacia catechu	Exports of Cutch and Gambier: Cwt. Rs. (ooo) 1930-31 48,138 901 1931-32 35,292 419 1932-33 29,066 307 1933-34 31,237 376	A	Dy.2, 15	INDIA
CISTANCHE Cistanche lutea		D	Dy.19	PALESTINE
COCHLOSPERMUM DYE Cochlospermum tinctorium		B	Dy.18	NIGERIA
DHAURA Woodfordia floribunda		C	Dy.2	INDIA
DRAGON'S BLOOD Daemonorops spp.		C	Dy.9	SARAWAK
ENANTIA DYE Enantia chlorantha		C		NIGERIA
FUSTIC Chlorophora tinctoria	Tons £ 1932 1,463 5,120 1933 2,253 7,668 1934 1,575 4,487	A	Dy.10, 11, 17	JAMAICA
Chlorophora tinctoria	No local production or exports in recent years	A	Dy.10, 11, 17	TRINIDAD AND TOBAGO
Chlorophora tinctoria		D	Dy.8	BRITISH HONDURAS
GAMBIER See CATECHU				

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
INDIAN GAMBOGE Garcinia morella		D	Dy.2	INDIA
INDIGO Indigofera argentea		D	Dy.19	PALESTINE
INDIGOFEA DYE (OR INDIGO) Indigofera spp.		C	Dy.18	NIGERIA
JACK DYE Artocarpus integrifolia (A. integra)		C	Dy.2	INDIA
KAMILA FRUITS Mallotus philippinensis		C	Dy.2	INDIA
LAC DYE* (Laccifer lacca)		D	Dy.2, 8	INDIA
LOGWOOD Haematoxylon campechianum	Tons £ 1932 Nil Nil 1933 10 25 1934 67 98	A	Dy.5, 10, 11, 16, 17	ST. LUCIA
Haematoxylon campechianum	No export in recent years	A	Dy.10, 11, 16, 17	BAHAMAS
Haematoxylon campechianum	Tons \$ 1931 268 5,833 1932 103 1,545 1933 136 1,702	A	Dy.11, 13, 16, 17	BRITISH HONDURAS
Haematoxylon campechianum	Logwood Tons £ 1932 19,258 55,230 1933 25,104 68,674 1934 12,028 32,137 Extract Cwt. £ 1932 16,692 57,938 1933 30,045 101,528 1934 23,516 78,256	A	Dy.10, 11, 16, 17	JAMAICA

* For Lac products, see also under Miscellaneous, p. 76.

Commodity and Species	Exports		Economic Class	Biblio-graphical Reference	Country
LOGWOOD— <i>contd.</i> Haematoxylon campechianum			D	Dy.10, 11, 16, 17	LEEWARD ISLANDS
MADDER ROOTS Rubia tinctorum			D		CYPRUS
MANGROVE DYE Rhizophora racemosa			D	Dy.18	NIGERIA
MARKING NUT Semecarpus anacardium			B	Dy.3	INDIA
MDAA Euclea bilocularis	Black dye for leaf mats		C		ZANZIBAR
MORINDA DYE Morinda lucida			D	Dy.18	NIGERIA
PINE NEEDLE DYE Pinus spp.			D		CANADA
RED SANDERS WOOD Pterocarpus santalinus			C	Dy. 2, 6, 8	INDIA
SAPPAN WOOD DYE Caesalpinia sappan	1932	Cwt. 847	A	Dy.1, 2, 3	CEYLON
	1933	937			
	1934	896			
		Rs. 3,165			
		2,771			
		2,729			
SORREL Rumex acetosa and Rumex acetosella			D		CANADA
SPRUCE GUM AND BARK Picea glauca Picea mariana Picea rubens (Picea rubra)			C	Dy.5	CANADA
SUMAC— AMERICAN SUMAC Rhus glabra and Rhus typhina			D		CANADA

Commodity and Species	Exports	Economic Class	Biblio-graphical Reference	Country
TOURNESOL Chrozophora spp.		D		PALESTINE
TREMA DYE Trema guineënsis		D	Dy.12, 14, 18	NIGERIA
TRICHILIA DYE Trichilia emetica		D	Dy.18	NIGERIA
WHITE BIRCH BARK Betula pendula (Betula alba)		D		CANADA
WHITE MANGROVE Avicennia nitida		C		SIERRA LEONE
WRIGHTIA INDIGO Wrightia tinctoria		C	Dy.2	INDIA
YORUBA INDIGO Lonchocarpus cyanescens	Very large local use	B	Dy.7, 18	SIERRA LEONE
Lonchocarpus cyanescens		C	Dy.7, 18	NIGERIA
Lonchocarpus cyanescens		D	Dy.7, 18	GOLD COAST

ESSENTIAL OILS

Medicine and the perfumery and soap trades are the principal outlet for the essential oils. Among the great variety of such oils produced in the British Empire, the more important are the Bay Oil of St. Lucia and Jamaica, the beautifully scented Boronia Oil of Australia, the Cedar Wood Oil of Kenya, the Cinnamon Oil of India, Ceylon and the Seychelles, and a group of oils derived from species of *Cymbopogon* and other grasses in India, of which Lemon Grass Oil and Citronella Oil are examples. The old established and well-known Eucalyptus Oils, originally a monopoly of Australia, are now produced in India as well and are also likely to be produced in various parts of Africa. Sandal-Wood Oil, so long a staple Indian product and distinguished in the trade as East India Sandal-Wood Oil, is now an important product of West Australia, where, at Perth, its manufacture in an up-to-date and technically controlled factory has been in progress for some years.

Many of the other essential oils listed are at present of small value, but in view of the research constantly pursued both by private and official agency, such as the Imperial Institute, developments are to be expected.

In accordance with the common plan outlined in the Introduction (see p. 9), plants yielding essential oils are listed in this Index only for those countries in the Empire in which they occur as minor forest products. It is to be noted that many of them are also produced in other countries as cultivated crops. Outside Australia, for instance, stands of Eucalyptus occur only as a result of cultivation. Cinnamon, Bay and Pimento have been established in various parts of the tropics, Cinnamon being an important cultivated product of Ceylon, while Jamaica is the principal source of supply for Pimento. The Tonquin bean has also been cultivated away from its native habitat—tropical South America—and in recent years its cultivation in Trinidad has attracted increased attention. Many of the oil-yielding grasses are cultivated in various parts of the tropics for oil production, so also is Ylang Ylang or Pang Lang (Eastern tropics). Lavender and Thyme are also grown for oil production, chiefly in European countries.

While the Cinnamon and Citronella of Ceylon are excluded as cultivated crops, the Rosha and Citronella grass crops of India have been included in the Index since, although it is true that the lessees improve the crops by periodical burning and by dibbling in new grass roots, these operations hardly justify the classification of the products as cultivated crops.

Commodity and Species	Exports			Economic Class	Biblio-graphical Reference	Country
BAY OIL AND BAY RUM Pimenta acris	<i>Oil</i> Galls. £ 1931 221 500 1932 44 100 1933 20 32 <i>Bay Rum</i> Galls. £ 1931 5,579 1,043 1932 1,428 276 1933 1,827 398			A	E.6	ST. LUCIA
BIRCH BARK OIL See SWEET BIRCH OIL						CANADA
BORONIA FLOWER OIL Boronia megastigma	n.s.c. ; export, 5 year average, 3,000 oz. ; £9,000			A	E.7	AUSTRALIA
CEDAR LEAF OIL Thuja occidentalis Thuja plicata Chamaecyparis nootkatensis	Could be produced in large quantities			B	E.33	CANADA
CEDARWOOD OIL Juniperus procera Juniperus procera	n.s.c. No local trade, but export contemplated			A B	E.2, 18	KENYA TANGANYIKA
Juniperus virginiana Thuja plicata Thuja occidentalis Chamaecyparis nootkatensis				D	E.19	CANADA
CINNAMON OIL Cinnamomum zeylanicum	Galls.	Rs.		A	E.14	INDIA
	1929-30	186	9,900			
	1931-32	2	56			
	1932-33	-	-			
	1933-34	80	1,400			

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CINNAMON (BARK AND OIL) Cinnamomum zeylanicum	<i>Bark</i> Tons Rs. 1931 34½ 3,041 1932 97½ 7,816 1933 64½ 5,170 <i>Leaf Oil</i> Kilos. Rs. 1931 54,793 256,292 1932 49,669 188,476 1933 60,684 201,156	A	E.9	SEYCHELLES
CITRONELLA OIL Cymbopogon nardus	Galls. Rs. 1928-29 1,929 18,911 1931-32 - - 1932-33 50 562 1933-34 - -	A	E.14	INDIA
Cymbopogon nardus		B	E.12	FIJI
EUCALYPTUS OIL Eucalyptus spp.	Galls. (ooo) £ 1928-29 114 85,009 1931-32 101 40,977 1932-33 114 40,075 1933-34 100 41,010	A	E.13, 22, 34, 37	AUSTRALIA
GINGER GRASS OIL Cymbopogon martinii	Galls. Rs. 1929-30 714 36,747 1931-32 322 14,302 1932-33 101 2,750 1933-34 129 3,400	A	E.30	INDIA
HOARY BASIL See KIVUMBASI				ZANZIBAR
HUON PINE OIL Dacrydium franklinii		D	E.23, 34	AUSTRALIA
HYACINTH FLOWER OIL Hyacinthus orientalis		D	E.47	PALESTINE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
JUNIPER BERRY OIL Juniperus communis		D	E.19	CANADA
KIVUMBASI (HOARY BASIL) Ocimum canum		C		ZANZIBAR
LAUREL LEAF AND SEED OIL Laurus nobilis		B	E.46	PALESTINE
LAUREL LEAF OIL Laurus nobilis		D		CYPRUS
LAVENDER OIL Lavandula stoechas		B	E.47	PALESTINE
LEMON GRASS OIL Cymbopogon citratus	Galls. Rs.(ooo) 1928-29 97,549 1,626 1931-32 50,670 481 1932-33 43,098 418 1933-34 45,416 630	A	E.14, 52	INDIA
MAKITA OIL Parinari glaberrima (Parinarium laurinum)		D		FIJI
MUHUGU OIL Brachylaena hutchinsii		B	E.20	KENYA
MYRTLE LEAF OIL Myrtus communis Myrtus communis		B D	E.47 E.17	PALESTINE CYPRUS
NARCISSUS FLOWER OIL Narcissus tazetta		B	E.47	PALESTINE
NDILO OIL Calophyllum inophyllum		C		FIJI
OCIMUM CAMPHOR AND CAMPHOR OIL Ocimum canum		D	E.27	KENYA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
OIL OF WINTERGREEN Gaultheria fragrantissima Gaultheria procumbens	Raw supply available	C D	E.14 E.19, 41	INDIA CANADA
ORIGANUM OIL (LEAVES AND FLOWERS) Origanum sp.	Cwt. £ 1932 23 150 1933 15 295 1934 34 668	A	E.1, 17	CYPRUS
Origanum maru	In 1932 = 1,128 kilos; Value £P.338 (n.s.c.)	B		PALESTINE
PALMA ROSA See ROSHA GRASS OIL				INDIA
PANG-LANG OIL Canangium odoratum (Cananga odorata)		D		FIJI
PENNYROYAL Mentha pulegium		D	E.47	PALESTINE
PIMENTO LEAF OIL Pimenta officinalis	Galls. £ 1932 1,057 1,331 1933 1,611 1,841 1934 2,262 1,833	A	E.35	JAMAICA
PINE NEEDLE OIL Pinus spp.	Could be produced in large quantities	D	E.19, 46	CANADA
POONGA OIL Pongamia pinnata (Pongamia glabra)		D		FIJI
ROSHA GRASS OIL (PALMA ROSA) Cymbopogon martinii	Galls. Rs.(ooo) 1929-30 9,268 416 1931-32 6,584 236 1932-33 7,373 250 1933-34 8,334 249	A	E.14, 30	INDIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
SANDALWOOD OIL Eucarya spp. and Santalum sp.	n.s.c. ; export, 5 year average, 40,000 lb. Max. 130,000 lb. Value not given	A	E.5, 24, 31, 34, 50, 51	AUSTRALIA
Myris tenuifoliata	Sandal wood exports :— Cu. ft. £ 1933 2,441 2,816 1934 10,915 11,132 Exported in billets. No local distillation	A	E.21	TANGANYIKA
Santalum album	Galls. Rs. (ooo) 1928-29 18,670 2,686 1931-32 12,679 1,815 1932-33 6,267 747 1933-34 8,192 924	A	E.14	INDIA
Santalum album	Recently introduced	D	E.39	NIGERIA
Santalum yasi		D	E.12	FIJI
SEDGE ROOTS Cyperus rotundus Cyperus longus		D	E.47	PALESTINE
SPRUCE AND HEMLOCK NEEDLE OIL Picea mariana Picea glauca Tsuga canadensis	Plentiful supply of raw material available	D	E.26, 33	CANADA
SWEET BIRCH OIL (BIRCH BARK OIL) Betula lenta		D	E.19, 48	CANADA
THYME OIL Thymus capitatus	Kilos. £P. 1929 14,379 4,464 1930 380 98 1931 159 41 1932 7,331 1,761 n.s.c. in 1933 and 1934	A		PALESTINE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
TONQUIN BEAN OIL <i>Dipteryx odorata</i>	n.s.c. ; exports very small	A	E.45	BRITISH GUIANA
TURPENTINE*				
VETIVER OIL <i>Vetiveria</i> sp.	n.s.c. ; exported as root ; no local distillation	A	E.14	INDIA
WOOD OIL <i>Widdringtonia</i> <i>whytei</i>		C	E.3, 20	NYASALAND
MISCELLANEOUS OILS <i>Backhousia citriodora</i>		D	E.49	AUSTRALIA
<i>Leptospermum citratum</i>		C	E.18, 34	AUSTRALIA

* See CHIR PINE RESIN, in "Oleo-Resin" sub-section of Gums and Resins, p. 53 below.

FIBRES

As a result of the general demand for cordage, many of the natural fibre plants, such as Sisal and other forms of Agave, have been developed as cultivated crops. The forests will, however, continue to yield many fibres, e.g. "Kitool", for local use and local trade. Raffia, on the other hand, is more widely known and used, while Kapok (or "tree cotton") is also well known for its special qualities. The Indian "bhabar" grass is an important source of supply for local rope-making, but is used principally for paper-making as a substitute "esparto" grass.

Kapok is cultivated in many tropical dependencies in the Empire but "little attempt has so far been made to collect and prepare it for the market" (Economic Survey of the Colonial Empire, 1935, p. 475). In 1934 some 350 tons were exported from Ceylon and about 110 tons from Tanganyika, but the chief centre of production is found in the Netherland East Indies.

Luffa (or "Loofah") is cultivated principally in Japan, which produces the best grades, and also in North Africa and Florida. Experimental cultivation has been undertaken in India and Java (see Kew Bulletin No. 5, 1931).

Bowstring Hemp (*Sansevieria* sp.) is cultivated on a small scale in Ceylon.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ABUTILON FIBRE <i>Abutilon</i> spp.		C	F.27, 40, 45	NIGERIA
ACACIA FIBRE <i>Acacia seyal</i>		D	F.27, 40, 45	NIGERIA
ANTIARIS FIBRE <i>Antiaris africana</i>		D	F.27, 40, 45	NIGERIA
BALSA FLOSS <i>Ochroma pyramidale</i>		D	F.16	TRINIDAD AND TOBAGO
BAOBAB BAST <i>Adansonia digitata</i> <i>Adansonia digitata</i>		C D	F.33	GAMBIA KENYA COLONY
BAOBAB FIBRE <i>Adansonia digitata</i>		D	F.27, 40, 45	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
BAOBAB See MBUYU Adansonia digitata				ZANZIBAR
BAUHINIA FIBRE Bauhinia spp.		D	F.27, 40, 45	NIGERIA
BELI-PATTA Hibiscus tiliaceus		D	F.11	CEYLON
BEMBAN Donax canniformis (Donax grandis)	\$ 1932 2,765 1933 3,461 1934 2,646	A		SARAWAK
BHABAR GRASS Ischaemum angustifolium	Upwards of 50,000 tons a year are used for paper making	B	F.2, 21, 22, 48	INDIA
BOWSTRING HEMP Sansevieria spp. Sansevieria spp.		B D	F.29, 45, 47	NIGERIA GOLD COAST
CALAMUS FIBRE Calamus spp.		D	F.27, 40, 45	NIGERIA
CALOTROPIS FIBRE Calotropis procera Calotropis procera		C C	F.27, 40, 45 F.8	NIGERIA INDIA
COCHLOSPERMUM FIBRE Cochlospermum tinctorum		D	F.27, 40, 45	NIGERIA
COMBRETUM FIBRE Combretum micranthum		D	F.27, 40, 45	NIGERIA
CYCAD FIBRE Encephalartos barteri		D	F.27, 40, 45	NIGERIA
DOUM PALM FIBRE Hyphaene thebaica		D	F.27, 40, 45	NIGERIA
DRACAENA FIBRE Dracaena sp.		D	F.27, 40, 45	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
EAST INDIAN SCREW TREE Helicteres isora		C	F.8	INDIA
FIRMIANA FIBRE Firmiana barteri		B	F.27, 40, 45	NIGERIA
GRASS TREE See KINGIA GRASS				AUSTRALIA
HELICONIA Heliconia spp.		D		BRITISH HONDURAS
HEMP Crotalaria juncea Sterculia spp. Thespesia spp. (See also BOWSTRING HEMP)		D D D	F.43	CEYLON NIGERIA NIGERIA NIGERIA
HENEQUEN Agave sisalana		C		BRITISH HONDURAS
INDIAN KAPOK Bombax malabaricum	Cwt. Rs. (000) 1928-29 38,448 1,698 1931-32 24,065 673 1932-33 23,313 638 1933-34 23,662 561	A	F.8, 10, 44	INDIA
KAPOK Ceiba pentandra (Eriodendron anfractuosum)	Cwt. Rs. (000) 1932 6,066 153 1933 4,226 120 1934 7,375 185	A	F.1	CEYLON
Ceiba pentandra	No export in recent years	B	F.29, 45, 47	GOLD COAST
Asclepias spp.		C	F.24, 40	NIGERIA
Bombax spp.		C	F.24, 40	NIGERIA
Calotropis procera		C	F.24, 40	NIGERIA
Ceiba pentandra		C	F.24, 40	NIGERIA
Funtumia spp.		C	F.24, 40	NIGERIA
Holarrhena spp.		C	F.24, 40	NIGERIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
KINGIA GRASS (GRASS TREE FIBRE) <i>Kingia australis</i>		D	F.18	AUSTRALIA
KITTOOL <i>Caryota urens</i>	n.s.c.	A	F.8, 32	INDIA
<i>Caryota urens</i>	Cwt. Rs. (ooo)	A	F.1	CEYLON
	1932 1,323 61			
	1933 1,458 60			
	1934 1,963 79			
LUFFA <i>Luffa cylindrica</i>		C	F.27	NIGERIA
MAHOE <i>Sterculia caribaea</i>		D	F.16, 20, 42	TRINIDAD AND TOBAGO
MASE <i>Broussonetia papyrifera</i>		D		FIJI
MBUYU (BAOBAB) <i>Adansonia digitata</i>		C		ZANZIBAR
MCHIKICHI (OIL PALM) <i>Elaeis guineensis</i>		D		ZANZIBAR
MDEKE <i>Pandanus sp.</i>		D		ZANZIBAR
MKADI <i>Pandanus utilis</i>		C		ZANZIBAR
MKINDU (WILD DATE PALM LEAVES) <i>Phoenix reclinata</i>		C		ZANZIBAR
MOHO BARK <i>Belotia campbellii</i>		B		BRITISH HONDURAS
MUNJ GRASS <i>Saccharum arundinaceum</i>		C	F.7, 8, 21, 22	INDIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
MWALE <i>Raphia pedunculata</i> (R. ruffia)		D		ZANZIBAR
NAVA BARK <i>Sterculia balanghas</i>		C	F.46	CEYLON
OIL PALM FIBRE <i>Elaeis guineensis</i> (See also MCHIKICHI)		B	F.27, 40, 45	NIGERIA ZANZIBAR
PALMYRA <i>Borassus flabellifer</i>	n.s.c. ; large quantities available	B	F.8, 32	INDIA
PIASSAVA FIBRE <i>Raphia vinifera</i>	Tons £	A	F.5, 10	NIGERIA
	1931 527 11,323			
	1932 265 3,290			
	1933 437 5,418			
	1934 581 6,992			
<i>Raphia vinifera</i>	Tons £	A	F.28	SIERRA LEONE
	1932 2,877 23,290			
	1933 3,499 30,108			
	1934 3,659 30,390			
<i>Raphia vinifera</i>		B	F.33	GAMBIA
<i>Raphia vinifera</i>	About 400 tons produced annually	B	F.10, 29, 45, 47	GOLD COAST
	Tons £			
	1933 — 6			
	1934 — —			
PINE NEEDLE WOOL <i>Pinus spp.</i>		D	F.37	CANADA
POCHOTE <i>Cochlospermum vitifolium</i>		C		BRITISH HONDURAS
POLAK <i>Ochroma limonense</i>		C		BRITISH HONDURAS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
RAFFIA Raphia vinifera	Cwt. £ 1932 6 132 1933 5 11 1934 n.s.c.	B	F.4	SIERRA LEONE
Raphia vinifera		B	F.10, 29, 45, 47	GOLD COAST
Raphia monbuttorum and R. vinifera	Tons 1932 5.5 1933 3.5 1934 n.s.c.	B	F.14	TANGANYIKA
Raphia vinifera		C	F.5	NIGERIA
Raphia sp.		C	F.34, 45	UGANDA
Raphia vinifera		D	F.3	GAMBIA
RATTAN Calamus deerratus		C		SIERRA LEONE
Eremospatha sp.		C		SIERRA LEONE
SAPOW Momordica bracteata and Telfairia occi- dentalis	About 10 tons produced annually	C	F.29, 45	GOLD COAST
SCREW-PINE Pandanus spp.		B	F.26	SARAWAK
Pandanus spp.		C	F.27, 40, 45	NIGERIA
Pandanus spp.		D	F.29, 45, 47	GOLD COAST
SILK COTTON FLOSS Ceiba pentandra (Eriodendron anfractuosum)		C		TRINIDAD AND TOBAGO
SILK GRASS Bromelia magdalenae (Ananas magdalenae)		B		BRITISH HONDURAS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
STERCULIA FIBRE Sterculia villosa Sterculia spp. (See also HEMP)		C D	F.8 F.27, 40, 45	INDIA NIGERIA
STOCKROSE Sparmannia africana		D	F.17, 39	SOUTH AFRICA
THESPESIA HEMP Thespesia populnea		D		NIGERIA
VOIVOI Pandanus caricosus		D		FIJI
WHITE SILK COTTON TREE Cochlospermum gos- sypium		C	F.8	INDIA
WILD DATE PALM LEAVES See MKINDU				ZANZIBAR
WURO BAGANI Urena lobata	n.s.c. ; 1927-32 export nil	B	F.40, 45	NIGERIA
MISCELLANEOUS FIBRES† Adansonia digitata Brachystegia spp. Hibiscus cannabinus Pouzolzia hypoleuca Sansevieria kirkii Securidaca longipe- dunculata Sida rhombifolia Cymbopogon validus		C	F.15, 19	NYASALAND
Hyparrhenia hirta (Andropogon hirtus) Hibiscus spp.		D	F.36 F.27, 40, 45	SOUTHERN RHODESIA NIGERIA

† See also "Bast Fibres" in Appendix I (Sudan).

GUMS AND RESINS

The products in this section have been sub-divided into four groups as follows:—

- (i) Gums;
- (ii) Resins;
- (iii) Gum Resins;
- (iv) Oleo-Resins.

Of the Gums, Gum arabic and its closely allied gums are important, the Anglo-Egyptian Sudan being the principal producer.

In the resins group, Accroides or Acaroid gum is a practical monopoly of Australia, and Kauri gum of New Zealand, but where the great resin families of Copals and Damars are concerned, the British Empire accounts for only a small proportion of the world production (See T. H. Barry's *Natural Varnish Resins*—G.44 in Bibliography). The Belgian Congo and the Netherland East Indies are large sources of supply.

The whole category of natural resins has been hard hit by the remarkable development in the last fifteen years of the synthetic resin trade, these resins being the result of chemical reaction principally between phenol, urea and formaldehyde, while caseine, nitrocellulose derivatives, the glyptals, the vinyls and many others have invaded the field—especially in the varnish trade in which natural resins once reigned supreme.

This development has led to considerable scientific research being undertaken to improve the production and uses of natural resins and their processing, with an encouraging measure of success.

The creation of a rosin and turpentine industry in British India (See G.69 in Bibliography—*Work of the Forest Department in India*, and also T. H. Barry as above) which has made that country more or less independent of foreign sources of supply, is of interest, for with the extension of coniferous plantations in Australasia and South Africa, Empire developments may be predicted.

The Carob Bean (*Ceratonia* sp.), indigenous in Syria and North Africa, is cultivated in Cyprus (where it constitutes an important item in the export trade) and in countries round the Mediterranean and also in India, the West Indies and Queensland. The chief use of the beans is as an ingredient in cattle cake, for which their sugar content is valuable, but the mucilaginous gum derived from the seeds is a source of "Tragasol" and similar substances employed in the textile industry and in the manufacture of toilet preparations (see *Economic Survey of the Colonial Empire*, 1935, p. 529).

Chicle gum (*Achras* sp.) occurs as a minor forest product not only in British Honduras but generally in Central and South America. Wattle gum,

derived from *Acacia* species, is a natural product of Australia, but the wattle is now extensively cultivated in South and East Africa (see introduction to the Section on Tanning Materials, page 63).

(i) GUMS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACACIA GUM Acacia spp.	n.s.c.	A	G.4, 17	BRITISH SOMALILAND
Acacia seyal	Exports of "Gums and Resins" other than Copal and Arabic: mainly Acacia seyal Cwt. £ 1931 233 535 + 1932 18 51 1933 18 54 1934 — —	A	G.28, 47, 65	NIGERIA
Acacia spp. Acacia spp. Acacia senegal		A D D	G.28, 47, 65 G.3, 36 G.18, 34	NIGERIA NYASALAND SIERRA LEONE
ALBIZZIA GUM Albizzia zygia (Albizzia brownii)		D		UGANDA
ANOGEISSUS GUM Anogeissus spp.		A	G.28, 47, 65	NIGERIA
ARABIC GUM (OR KOL-KOL GUM)† Acacia spp.	Imports exceed exports Imports Tons Rs. 1932-33 221 103,672 1933-34 131 59,623 Exports 1932-33 57 22,464 1933-34 48 16,076	A	G.19	INDIA

† See also Appendix I (Sudan).

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ARABIC GUM— <i>contd.</i> Acacia arabica	Average export of Talh and other Gums 1927-1932 = £460 (n.s.c., 1934)	A	G.28, 47, 65	NIGERIA
Acacia vereck	Tons £ 1932 599 10,970 1933 485 9,793 1934 295 7,501	A	G.28, 47, 53	NIGERIA
Acacia kirkii	Tons £	A	G.29	TANGANYIKA TERRITORY
Acacia seyal	1932 978 12,215			
Acacia senegal	1933 911 10,064			
Acacia drepanolobium	1934 1,040 18,448			
Acacia formicarum				
Acacia spirocarpa				
Acacia spp. unidentified (at least two)				
Dichrostachys glomerata				
Terminalia stuhlmannii				
Acacia senegal		C	G.50, 65, 67	GOLD COAST
Acacia seyal		D	G.56	SOUTHERN RHODESIA
Acacia sp.		D		UGANDA
BALSAMOCITRUS GUM Balsamocitrus dawei		D		UGANDA
BASSORA GUM (HOG GUM OR KATIRA GUM)				
Sterculia urens	n.s.c.	B	G.19	INDIA
Cochlospermum gossypium				
Bombax malabaricum				
Stereospermum suaveolens, etc.				
See also KARAYA GUM				INDIA
CAPE GUM Acacia karroo		C	G.11	SOUTH AFRICA
CAROB BEAN GUM Ceratonia siliqua		B	G.12	PALESTINE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
GOMMIER GUM Bursera simaruba		D		ST. VINCENT
HIK GUM Odina sp. Lannea grandis (Odina wodier)		C	G.22	CEYLON
HOG GUM See BASSORA GUM				INDIA
KARAYA GUM Sterculia urens	Much in demand (n.s.c.)	B	G.19	INDIA
KATIRA GUM See BASSORA GUM				INDIA
KINO GUM Pterocarpus marsupium	n.s.c.	A	G.19, 69	INDIA
Pterocarpus marsupium		B	G.19	CEYLON
KOLKOL GUM See ARABIC GUM Acacia vereck				NIGERIA
TALH GUM See ARABIC GUM Acacia arabica				NIGERIA
WATTLE GUM Acacia spp.		D	G.59	AUSTRALIA
MISCELLANEOUS GUMS Berlinia spp. Canarium spp. Cassia spp. Daniellia spp. Dichrostachys glomerata Pterocarpus spp. Sterculia tragacantha		C	G.28, 47, 65	NIGERIA

(ii) RESINS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACAROID GUM See BLACKBOY GUM				AUSTRALIA
BALATA RESIN Mimusops globosa	Production Cwt. 1931 10,219 1932 6,623 1933 1,368 Exports Cwt. \$ (ooo) 1931 6,835 260 1932 5,699 149 1933 4,282 128	A	G.52, 62, 64	BRITISH GUIANA
BLACKBOY GUM (OR ACAROID GUM, GRASS TREE GUM AND YACCA GUM) Xanthorrhoea spp.	Cwt. £ 1931-32 41,860 12,631 1932-33 38,488 10,645 1933-34 45,371 12,664	A	G.6, 7, 13, 20, 32, 33, 37, 44, 48, 68	AUSTRALIA
CHICLE GUM Achras chicle (Calocarpum viride) Calocarpum sapota (C. mammosum) Dipholis stevensonii Achras sapota	n.s.c. Cwt. \$ (ooo) 1931 3,577 181 1932 3,252 126 1933 2,865 89	A	G.15	BRITISH HONDURAS
Achras sapota	Apparently no exports since 1920	D	G.64, 15	BRITISH GUIANA
COPAL Daniellia ogea and Daniellia oliveri Copaifera guibour-tiana	No exports since 1928 (cwt. 998 ; £4,190) Export is not permitted in every year Exports in 1933 : 54 Tons ; £2,675	A A	G.44, 47 G.44	NIGERIA SIERRA LEONE

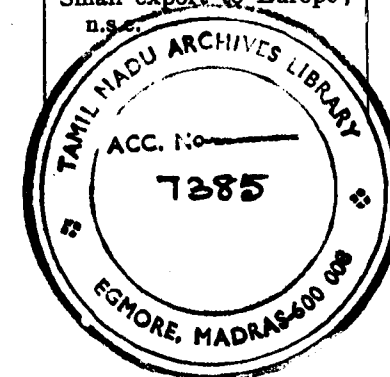
Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
COPAL—contd. Daniellia spp.	Cwt. £ 1932 — — 1933 4 4 1934 56 58 All to United Kingdom	A	G.44, 50, 65, 67	GOLD COAST
Trachylobium verrucosum	Exports for Kenya and Uganda : Cwt. £ 1932 253 1,274 1933 281 1,204 1934 392 1,424	A	G.37, 44	KENYA
Trachylobium verrucosum	Trade not being developed, and may decline Cwt. £ 1932 1,100 3,325 1933 2,080 5,175 1934 1,680 3,583	A	G.37, 44	TANGANYIKA
COURBARIL RESIN Hymenaea courbaril		C	G.61	BRITISH HONDURAS
CROWN GUM See CHICLE GUM				BRITISH HONDURAS
DAMAR Agathis alba and spp.	Piculs* £ 1932 14,236 837 1933 16,315 1,911	A	G.5, 44	NORTH BORNEO
DAMAR BATU Shorea sp.	Piculs* £ 1932 27,421 3,199 1933 40,736 4,753	A	G.5, 44	NORTH BORNEO
DAMAR DAGING Shorea sp.	Piculs* £ 1932 1,088 1,160 1933 2,635 2,756	A	G.5, 44	NORTH BORNEO
DAMAR HITAM Shorea sp. Balanocarpus sp.	Piculs* £ 1932 10,322 5,597 1933 10,491 3,878	A	G.5, 44	NORTH BORNEO

* One Picul=133.33 lb.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
DAMAR KUCHING Hopea sp.	Piculs* £ 1932 41 47 1933 89 85	A	G.5, 44	NORTH BORNEO
DAMAR (VARIOUS) Shorea spp. Hopea spp. Canarium spp. Balanocarpus spp.	Net exports : Tons \$ (000) 1932 2,354 331 1933 2,705 502 1934 1,509 444	A	G.42, 43, 44	MALAY STATES AND STRAITS SETTLEMENTS
DAMAR COPAL Agathis alba	Exported in mixed parcels as "Damar Daging" Piculs* \$ 1932 3,218 25,798 1933 5,155 53,746 1934 4,552 45,223	A	G.42, 44	SARAWAK
DAMAR MATA KUCHING, ETC. Dipterocarpus spp.	Piculs* \$ 1932 126 773 1933 75 446 1934 96 678	A	G.42, 44	SARAWAK
DAMAR LAUT	(Very low grade) Piculs* \$ 1932 467 916 1933 4,286 6,102 1934 5,180 7,113	A	G.42, 44	SARAWAK
DAMAR (BLACK) Canarium strictum	About 50 tons available in Madras and 40 tons in Travancore annually	B	G.19, 37	INDIA
DAMAR (WHITE) OR PINEY TALLOW Vateria indica	n.s.c.	B	G.37, 44	INDIA
DAMAR Vateria acuminata		D	G.63	CEYLON

* One Picul=133.33 lb.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
DRAGON'S BLOOD RESIN Daemonorops draconcella		C	G.44	NORTH BORNEO
Daemonorops sp.	Trade almost entirely entrepot : Netexport in 1934, \$29,196	C	G.37, 44	MALAY STATES AND STRAITS SETTLEMENTS
ELEMI Canarium schweinfurthii	Used locally for caulking canoes, and as incense in churches	C	G.37	UGANDA
GAMBOGE RESIN Garcinia spp.	55 tons (Rs.4,400) exported in 1933. (n.s.c., 1934)	B	G.22	CEYLON
GRASS TREE GUM See BLACKBOY GUM				AUSTRALIA
GRASS TREE RESIN See BLACKBOY GUM				AUSTRALIA
HARONGANA RESIN Haronga madagascariensis		D		UGANDA
KAURI GUM Agathis australis	Tons £ 1932 2,068 62,137 1933 3,089 77,973 1934 3,209 86,917	A	G.40, 45	NEW ZEALAND
Agathis vitiensis	Tons £ 1932 153 3,103 1933 131 3,220 1934 297 4,364	A	G.39, 44	FIJI
KHINJAK RESIN Pistacia cabulica	Small export to Europe ; n.s.c.	B	G.44	INDIA
LADANUM RESIN. Cistus spp. 33381		C		CYPRUS

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N 36

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
MASTIC GUM <i>Pistacia lentiscus</i>	n.s.c.	D	G.41	PALESTINE
MBULIWAI GUM <i>Garcinia guttifer</i>		A	G.31	FIJI
NDINDI RESIN <i>Canarium vitiense</i>		A	G.26	FIJI
PINEY TALLOW See DAMAR (WHITE)				INDIA
PROTIUM RESIN <i>Protium sessiliflorum</i>		B		BRITISH HONDURAS
SANDARAC RESIN <i>Callitris</i> spp.		D	G.8, 44	AUSTRALIA
STORAX RESIN <i>Styrax officinalis</i>		D	G.37	PALESTINE
TEREBINTH RESIN <i>Pistacia terebinthus</i>		D		PALESTINE
XANTHORRHOEA GUM See BLACKBOY GUM				AUSTRALIA
YACCA GUM See BLACKBOY GUM				AUSTRALIA

(iii) GUM-RESINS

BDELLIUM GUM <i>Commiphora</i> spp.	n.s.c. : Figures include Frankincense and Myrrh Tons £	A	G.9, 10	BRITISH SOMALILAND
	1931 532 12,065			
	1932 789 9,279			
	1933 423 9,112			

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
FRANKINCENSE <i>Boswellia serrata</i> <i>Boswellia</i> spp.	n.s.c. (see figures for Arabic Gum)	C A	G.19 G.10, 17, 37	INDIA BRITISH SOMALILAND
MYRRH GUM <i>Commiphora</i> spp.	n.s.c.	A	G.10, 17	BRITISH SOMALILAND

(iv) OLEO-RESINS

CANADA BALSAM <i>Abies balsamea</i>	\$ 1931 16,109 1932 8,953 1933 6,278 1934 8,644	A	G.34, 57	CANADA
CHIR PINE RESIN (ROSIN AND TURPENTINE) <i>Pinus roxburghii</i> (<i>Pinus longifolia</i>)	Estimated productive capacity : 1½ million gallons of Turpentine, and 20,000 tons of Rosin Rosin Tons Rs. (000) 1931-32 721 190 1932-33 1,103 269 1933-34 518 112 Imports in 1931-32 exceeded Exports. Figures for Turpentine exports not available.	A	G.38, 44, 69	INDIA
DOUGLAS FIR RESIN <i>Pseudotsuga douglasii</i> (<i>Pseudotsuga taxifolia</i>)		D	G.16	CANADA
ENG OIL (IN OIL) <i>Dipterocarpus tuberculatus</i>		C	G.19	INDIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
GURJUN BALSAM (KAN-YIN OIL) Dipterocarpus turbinatus	n.s.c.	C	G.19	INDIA
PINE ROSIN Pinus caribaea	Very small local use	B		BRITISH HONDURAS
Pinus halepensis	Not produced yet.	B	G.27	CYPRUS
Pinus ponderosa Pinus resinosa	Potential local market	D	G.24, 51	CANADA

OILS AND OIL SEEDS

Owing largely to the sporadic growth and generally scattered nature of the trees yielding oil seeds and oils, these products are in most cases only of local value, but where the trees occur naturally in fairly close crops, economic collection and the development of an export trade is made possible. An outstanding example is the Palm Kernel and Palm Oil trade of the Gold Coast and the Gambia. This has, it is true, become an organised industry, and the correctness of including any particulars of it in an Index of Minor Forest Products might be challenged, but as the products in question are derived from the natural forest and not from plantations, they have been included. Other examples of trades which are based on the oil products of forest trees but which are not, on account of their magnitude, open to the same objection, are those in the Cashew and Illippe Nuts of India and the Shea Nuts of West Africa.

In West Africa the Oil Palm is still mainly a wild crop, though there is a small plantation industry. Oil Palm plantations are established in Malaya and the Netherland East Indies.

Cashew, which is exported from Southern India, is a native of tropical America and the West Indies and naturalised (but not cultivated) in Africa and Ceylon as well as in India.

Aleurites moluccana, the source of Candlenut Oil (which is distinct from China Wood Oil or Tung Oil) is more or less wild in the Philippine and Hawaiian Islands and Polynesia, and is experimentally cultivated in Malaya.

From *Moringa* species is derived Ben Oil, used by watchmakers. The plant grows wild in Ceylon, Java, Molucca and Cochin-China. It is cultivated in Mauritius and the Antilles, while in India it is found both wild and as a cultivated plant.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
AFRICAN BREAD FRUIT <i>Treculia africana</i>		D		SIERRA LEONE
ALLANBLACKIA FRUITS <i>Allanblackia stuhlmannii</i>		D	O.1	TANGANYIKA TERRITORY
ALLANBLACKIA SEEDS <i>Allanblackia floribunda</i>	Estimated production 500 tons annually	B	O.34, 50, 73	GOLD COAST

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ALLANBLACKIA SEEDS —contd.				
Allanblackia floribunda		C	O.40	NIGERIA
Allanblackia floribunda		D	O.34	SIERRA LEONE
AWARRA FRUITS Astrocaryum sp.		D	O.42	BRITISH GUIANA
BAKU BUTTER Mimusops heckelii (Dumoria heckelii) Mimusops djave	Estimated production 500 tons	C	O.50, 69, 73	GOLD COAST
BALANITES SEED (LUGBA) Balanites aegyptiaca		D	O.63	UGANDA
BEECHNUT OIL Fagus grandifolia		D	O.72	CANADA
BEHEN SEEDS Moringa aptera		D	O.70	PALESTINE
BEN OIL Moringa oleifera (M. pterygosperma)		D	O.40	NIGERIA
BETU OIL Balanites aegyptiaca		D		NIGERIA
BLACK WALNUT OIL Juglans nigra		D	O.72	CANADA
BURWEED Xanthium strumarium		D	O.70	PALESTINE
BUTTERNUT OIL Juglans cinerea		D		CANADA
CANARIUM Canarium spp.		D		INDIA
CANDLENUT OIL Aleurites moluccana		D		FIJI

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CARAP Carapa guianensis		D	O.71	BRITISH GUIANA
CARAPA OIL Carapa spp.		D		NIGERIA
CARAPA SEED Carapa grandiflora		D	O.63	UGANDA
CASHEW NUT Anacardium occidentale	n.s.c. ; large quantities exported from the Malabar Coast	A	O.12, 14	INDIA
COHUNE NUTS Orbignya cohune	lb. \$ 1930 2,574 27 1931 — — 1932 — — 1933 797 15	B	O.10, 11	BRITISH HONDURAS
COMMIPHORA SEED Commiphora zanzibarica		D	O.36	TANGANYIKA TERRITORY
CRABWOOD SEEDS Carapa guianensis		D	O.42	BRITISH GUIANA
CRAPPO SEEDS Carapa guianensis	A very limited production for local use	C	O.21, 25, 65	TRINIDAD AND TOBAGO
CUDDAPAH ALMONDS Buchanania latifolia		C	O.14	INDIA
DANIELLIA SEEDS Daniellia spp.		B	O.40	NIGERIA
DIKA Irvingia gabonensis (I. barteri) Irvingia gabonensis	Not regularly exported	C	O.69 O.40, 69	SIERRA LEONE NIGERIA
Irvingia gabonensis		D	O.69, 73	GOLD COAST

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
DOMBA NUTS Calophyllum inophyllum	Cwt.	Rs.	B	O.66	CEYLON
	1932	263			
	1933	402			
	1934	31			
	All to India				
DORANA Dipterocarpus glandulosus			C	O.16	CEYLON
FAI (OYSTER BEAN) Pentaclethra macrophylla Pycnanthus kombo			D	O.63	SIERRA LEONE
ILLIPE NUTS (MOWHA BUTTER) Madhuca longifolia (Bassia longifolia)	Tons	Rs.(000)	A	O.14, 62	INDIA
	1928-29	6,982			
	1929-30	402			
	1930-31	1,430			
	1931-32	—			
	1932-33	171			
	1933-34	n.s.c.			
	Mostly to Belgium				
Shorea spp. also Isoptera sp.	Tons	\$	A	O.7, 23	SARAWAK
	1929	7,476			
	1932	98			
	1933	—			
	1934	9			
ILLIPE NUTS (KETIAU) Payena sp.	Negligible		B	O.33	NORTH BORNEO
Madhuca longifolia (Bassia longifolia)	n.s.c. ; exported in cake, after extraction of oil, to India, under name of Arippe		C	O.66	CEYLON
Shorea spp. See also TENGKAWANG SEEDS			C	O.22	BRUNEI NORTH BORNEO
INDIAN ALMOND Terminalia catappa			C	O.17	INDIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
KAPOK SEED <i>Ceiba pentandra</i> (<i>Eriodendron anfractuosum</i>)		D	O.40	NIGERIA
KETIAU See ILLIPE NUTS <i>Payena</i> sp.				NORTH BORNEO
KOKERIT NUTS <i>Maximiliana</i> sp.		C	O.30	BRITISH GUIANA
KUNDI OIL <i>Carapa procera</i>		C	O.63	SIERRA LEONE
KUSUM SEEDS <i>Schleichera oleosa</i> (<i>Schleichera trijuga</i>)		C	O.14	CEYLON
<i>Schleichera oleosa</i> (<i>Schleichera trijuga</i>)		C	O.13, 14	INDIA
LAMY <i>Pentadesma butyracea</i>	Estimated production 500 tons yearly	B	O.50, 64, 69, 73	GOLD COAST
<i>Pentadesma butyracea</i>	n.s.c. ; not regularly exported	B	O.64	NIGERIA
<i>Pentadesma butyracea</i>		D	O.64	SIERRA LEONE
LOPHIRA OIL <i>Lophira alata</i>		C	O.63	SIERRA LEONE
LOPHIRA SEED <i>Lophira</i> spp.		B	O.40	NIGERIA
LOPHIRA SEED (LIKU) <i>Lophira alata</i>		C		UGANDA
LUGBA See BALANITES SEED				UGANDA

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
MACADAMIA NUT <i>Macadamia ternifolia</i>			C	O.38	AUSTRALIA
MANDURO <i>Balanites aegyptiaca</i>			D	O.31	PALESTINE
MINYAK KERUING See WOOD OIL					
MKWEME <i>Telfairia pedata</i>			D		ZANZIBAR
MOWHA BUTTER See ILLIPE NUTS <i>Madhuca latifolia</i> (<i>Bassia latifolia</i>)					INDIA
OYSTER BEAN See FAI					SIERRA LEONE
PALM KERNELS <i>Elaeis guineënsis</i>	1932 Tons £ 1933 615 4,199 1934 553 2,712		A	O.69	GAMBIA
<i>Elaeis guineënsis</i>	1932 Tons £ 1933 3,013 23,240 1934 3,367 19,306		A	O.50, 69, 73	GOLD COAST
PALM OIL <i>Elaeis guineënsis</i>	1930 Tons £ 1931 320 4,749 1932 702 10,688 1933 17 179 1934 64 674		A	O.50, 69, 73	GOLD COAST
PENTACLETHRA BEANS <i>Pentaclethra sp.</i>			B	O.40	NIGERIA
PINE KERNELS <i>Pinus pinea</i>			D	O.4	CYPRUS

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
PINEY TALLOW <i>Vateria indica</i>			C	O.14	INDIA
POVOAK <i>Afrolicania elaeosperma</i>			C	O.35	SIERRA LEONE
PULZA OIL <i>Jatropha spp.</i>			B	O.40	NIGERIA
PYCNANTHUS SEEDS <i>Pycnanthus kombo</i> <i>Pycnanthus schweinfurthii</i>			D D	O.40 O.63	NIGERIA UGANDA
RICINODENDRON SEEDS <i>Ricinodendron africanum</i>			D	O.40	NIGERIA
RUE SEEDS <i>Ruta bracteosa</i>			D	O.70	PALESTINE
SECURIDACA SEEDS <i>Securidaca longipedunculata</i>			D	O.40	NIGERIA
SHEA BUTTER† <i>Butyrospermum parkii</i>	Butter Tons £ 1929 103 3,491 1932 26 837 1933 20 978 1934 17 555 Nuts Tons £ 1929 6,748 65,024 1932 5,223 38,866 1933 10,341 65,643 1934 7,344 41,127		A	O.53, 59, 60, 61, 69	NIGERIA
<i>Butyrospermum parkii</i>	Occasional small exports		B	O.3, 50, 69, 73	GOLD COAST
<i>Butyrospermum parkii</i>			B	O.53	UGANDA

† See also "Shea Nuts" in Appendix I (Sudan).

Commodity and Species	Exports		Economic Class	Bibliographical Reference	Country
SOUARI NUT Caryocar nuciferum			B		BRITISH GUIANA
SUMAC BERRY Rhus typhina			D	O.41	CANADA
TALLOW NUT Ximenia americana			D		NIGERIA
TENGKAWANG SEEDS Shorea gysbertsiana Shorea chrysophylla Shorea spp.	1931 1932 1933 A large crop every 3 to 5 years	Piculs* 26 Nil Nil £ 23 Nil Nil	A	O.6, 67	NORTH BORNEO
TRICHILIA SEED Trichilia emetica			D	O.57	SOUTHERN RHODESIA
Trichilea emetica			D	O.51	TANGANYIKA
WOOD OIL (MINYAK KERUING) Dipterocarpus spp.	Exports Tons 1932 1933 1934 Imports Tons 1932 1933 1934	\$ 5,254 7,753 7,419 \$ 27,179 29,680 38,088	A	O.18, 33	MALAY STATES AND STRAITS SETTLE- MENTS
MISCELLANEOUS Ricinodendron raut- anenii			D	O.57	SOUTHERN RHODESIA
Ximenia americana			D	O.57	SOUTHERN RHODESIA

* One Picul=133.33 lb.

TANNING MATERIALS

This very important category of minor forest products is well represented in the Empire, and a scrutiny of the literature shows that in recent years it has been the subject of considerable research. So far, substitutes or synthetic products have not become serious rivals to natural tans. Of the various natural tanning materials, some are found mainly or entirely outside the Empire; others are the product mainly or entirely of certain Empire countries. Examples are the Myrabolans Nuts of India and the Wattle Barks of Australia and South Africa. The position of the Mangrove Barks and Extracts of Malaya, North Borneo, Sarawak and East Africa is similar, though the Netherland East Indies are also an important source of supply.

Artificial plantations have proved their economic superiority over the naturally occurring product in several cases, of which Chestnut, Quebracho and Wattle Bark are the most important. Chestnut is extensively cultivated in Southern Europe and the United States of America, and Quebracho in Argentina. Artificially grown plantations of Wattle have been extensively developed in the Union of South Africa, and the South African product is therefore not included in this Index. In 1932 the Union exported some 76,000 tons of Wattle Bark and Extract, valued at £492,000, and by 1934 these figures had risen to 89,000 tons and £556,000 respectively. Kenya, Tanganyika and Southern Rhodesia have followed suit, and it is to be expected that the naturally grown product, handicapped by higher costs of collection and transport, will soon be unable to compete.

Certain materials which are essentially tans may also be used as dyes. Catechu or Cutch is one of these and appears in the Index under both tanning materials and dyes. Gambier (*Uncaria*) is a well known tanning material in Malaya and elsewhere in Malaysia, being frequently cultivated. Divi-Divi, a native of the American tropics, was introduced into India over a hundred years ago and has been cultivated experimentally there as well as in other warm countries such as Australia, Tanganyika, the Gold Coast, Mauritius, and Java. Sumac is cultivated in Mediterranean countries, especially in Sicily and Cyprus.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACACIA BARK Acacia cyanophylla		C		CYPRUS
ACACIA PODS (GAMBIA Pods) Acacia sp.		C		GAMBIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ACACIA PODS— <i>contd.</i> Acacia sp. Acacia seyal (See also Reukpeul)		D	T. 28, 44, 59	NIGERIA
ACORN CUPS Quercus aegilops var. ithaburensis	Possible annual production 2,000 tons	B	T. 24, 34	PALESTINE
AVARAM BARK Cassia auriculata	n.s.c.	A	T.7, 18, 40, 51	INDIA
Cassia auriculata	Plentiful; utilised locally and exported to India (n.s.c.)	B	T.11	CEYLON
BABUL BARK AND PODS Acacia arabica		C	T.35, 40, 51, 66	INDIA
BAKO BARK See MANGROVE BARK Rhizophoraceae				SARAWAK
BALSAM BARK Abies balsamea	Available in quantity	D	T.29	CANADA
CAPE SUMAC Osyris compressa (Osyris abyssinica)		C	T.42	SOUTH AFRICA
CATECHU OR CUTCH Acacia catechu	Exports of Cutch and Gambier: Cwt. Rs.(000) 1930-31 48,138 901 1931-32 35,292 419 1932-33 29,066 307 1933-34 31,237 376	A	T.7, 51	INDIA
CHUKUM BARK Acacia riparia		D		BRITISH HONDURAS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
DIVI-DIVI PODS AND BARK Caesalpinia coriaria	No exports since 1927 (155 tons) owing to S. American competition	A	T.12, 40, 51	INDIA
Caesalpinia coriaria	Tons. £ 1932 72 352 1933 233 987 1934 19 104	A	T.51	JAMAICA
DOUGLAS FIR BARK Pseudotsuga douglasii (Pseudotsuga taxifolia)		D		CANADA
DWARF SUMAC LEAVES Rhus copallina		D		CANADA
EASTERN HEMLOCK BARK Tsuga canadensis	Hemlock Extract Bark* \$ 1932 5,618 190 1933 1,870 26 1934 4,402 — * n.s.c., but probably all Hemlock	A	T.19	CANADA
(See also Western Hemlock Bark)				
EUCALYPTUS BARK Eucalyptus sp.		C		CYPRUS
GALL NUTS Quercus infectoria		C	T.60	PALESTINE
GAMBIA PODS Acacia arabica (See also Acacia Pods)		B	T.28, 44, 59	NIGERIA GAMBIA
GARAD PODS†				

† See Appendix I (Sudan).

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
GREENHEART BARK <i>Ocotea rodioei</i>		D	T.1	BRITISH GUIANA
HEMLOCK SPRUCE BARK <i>Tsuga canadensis</i> (See also Eastern Hemlock Bark and Western Hemlock Bark)		D	T.51, 58	CANADA
INDIAN SUMAC <i>Anogeissus</i> spp. <i>Phyllanthus emblica</i>		C	T.18	INDIA
KARRI BARK EXTRACT <i>Eucalyptus diversicolor</i>		D	T.33	AUSTRALIA
KLIPHOUT BARK <i>Heeria argentea</i> (<i>Rhus thunbergii</i>)		C	T.42	SOUTH AFRICA
MALLET BARK <i>Eucalyptus astringens</i>	Production averages 4,000 tons, and export 2,000 tons (£20,000); n.s.c.	A	T.26, 51	AUSTRALIA
MANGROVE BARK <i>Rhizophora mangle</i>	Tons £ 1932 16 202 1933 17 208 1934 17 163	A	T.51	JAMAICA
<i>Rhizophora mucronata</i> <i>Bruguiera conjugata</i> (<i>Bruguiera gymnorrhiza</i>)	Tons £ 1932 47 233 1933 47 211 1934 145 589	A	T.51	KENYA
<i>Rhizophora mucronata</i> <i>Ceriops tagal</i> (<i>C. candolleana</i>) <i>Carapa obovata</i>	Bark Tons \$ 1932 128 2,519 1933 127 2,091 1934 66 1,377	A	T.21, 22, 51	MALAY STATE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
MANGROVE BARK— <i>contd.</i> <i>Rhizophora candelaria</i> <i>Rhizophora mucronata</i> <i>Bruguiera conjugata</i> (<i>Bruguiera gymnorrhiza</i>) <i>Bruguiera sexangula</i> (See also under Man- grove Extract)	Tons £ 1932 6,244 2,191 1933 3,700 1,454	A	T.4, 51	NORTH BORNEO
<i>Rhizophoraceae</i> (See also under Man- grove Extract)	Tons \$ 1932 2,879 10,852 1933 1,667 5,785 1934 914 3,072	A	T.51	SARAWAK
<i>Rhizophora mucronata</i> <i>Bruguiera conjugata</i> (<i>Bruguiera gymnorrhiza</i>)	Tons £ 1932 660 1,949 1933 3,115 8,615 1934 2,151 5,848	A	T.51	TANGANYIKA
<i>Avicennia nitida</i>	No exports in recent years	B	T.51	BAHAMAS
<i>Rhizophora</i> spp.	Cwt. Rs. 1931 32 1,035 1932 23 479 1933 — — 1934 n.s.c.	B	T.10	CEYLON
<i>Rhizophora mucronata</i> <i>Bruguiera conjugata</i> (<i>Bruguiera gymnorrhiza</i>)	Present exports nil	B	T.51	SEYCHELLES
<i>Rhizophora mangle</i>	Tons \$ 1931 7 120 1933 n.s.c.	B	T.1, 50	BRITISH GUIANA
<i>Bruguiera conjugata</i> (<i>Bruguiera gymnorrhiza</i>)		B	T.51	FIJI

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
MANGROVE BARK— <i>contd.</i>						
Avicennia nitida				B		NIGERIA
Rhizophora racemosa				B	T.28	NIGERIA
Avicennia nitida	1931	Cwt.	£	B	T.13, 14, 51,	TRINIDAD
Rhizophora mangle		n.s.c.			54, 56	AND
Laguncularia racemosa	1932	n.s.c.				TOBAGO
Conocarpus erectus	1933	10	3			
Avicennia nitida				C	T.30, 59	GOLD COAST
Rhizophora racemosa				C	T.30, 59	GOLD COAST
Rhizophora mucronata				C	T.18, 51	INDIA
Rhizophora sp. (See also Mkandaa) (See also Mkoko) (See also Msinsi)				D	T.51	AUSTRALIA ZANZIBAR ZANZIBAR ZANZIBAR
Rhizophora mangle				D	T.50	BRITISH HONDURAS
Rhizophora racemosa				D	T.37, 51	GAMBIA
Avicennia nitida				D	T.14	LEEWARD ISLANDS
MANGROVE EXTRACT						
Rhizophora candelaria		Extract Tons	£	A	T.20, 51	NORTH BORNEO
Rhizophora mucronata	1931	1,599	21,482			
Ceriops tagal (C. candolleana)	1932	1,446	20,411			
Ceriops roxburghiana	1933	1,504	21,054			
Rhizophora spp. and Bruguiera spp.		Extract Tons	\$ (000)	A	T.3	BRUNEI
	1932	2,833	195			
	1933	1,788	124			
	1934	2,356	163			

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
MANGROVE BARK— <i>contd.</i>						
Rhizophoraceae		Extract Tons	\$ (000)	A	T.51, 23	SARAWAK
	1932	1,350	212			
	1933	2,764	396			
	1934	2,875	455			
MKANDAA (MANGROVE BARK) Ceriops tagal (C. candolleana)				C		ZANZIBAR
MKOKO (MANGROVE BARK) Rhizophora mucronata				B		ZANZIBAR
MPESI BARK Trema guineensis				C		ZANZIBAR
MSINSI (MANGROVE BARK) Bruguiera gymnorhiza				C		ZANZIBAR
MYRABOLANS NUTS Terminalia chebula T. belerica		Nuts Cwt. (000)	Rs. (000)	A	T.18, 51	INDIA
	1931-32	1,271	6,618			
	1932-33	1,033	5,430			
		Extract Cwt. (000)	Rs. (000)			
	1931-32	4	42			
	1932-33	50	363			
Terminalia chebula T. belerica T. glabra T. arjuna		Cwt.	Rs.	B	T.7	CEYLON
	1931	3	13			
	1932	—	—			
	1933	—	—			
OAK BARK Quercus sp. (mainly Quercus coccifera)		n.s.c.; output in 1929, 75 cwt.		B	T.38	PALESTINE
Quercus alnifolia Quercus spp.				C D		CYPRUS BRITISH HONDURAS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ORCHELLA WEED Roccella montagnei		D	T.57	CEYLON
PERGULARIA PODS Pergularia tomentosa		D	T.28, 44, 59	NIGERIA
PINE BARK Pinus halepensis Pinus halepensis		C D	T.60	CYPRUS PALESTINE
PLUMBAGO ROOTS Plumbago europaea		D	T.60	PALESTINE
REUKPEUL (ACACIA PODS) Acacia benthamii		C	T.42	SOUTH AFRICA
SALOM BARK Lysiloma bahamense		D		BRITISH HONDURAS
SEA LAVENDER ROOTS Statice limonium		D	T.60	PALESTINE
SORREL ROOTS Rumex conglomeratus		D	T.60	PALESTINE
SPRUCE BARK Picea sitchensis P. glauca P. mariana	Available in quantity	D	T.8	CANADA
STAGHORN SUMAC Rhus typhina		D		CANADA
SUMAC LEAVES Rhus coriaria	Cwt. £ 1932 459 5.919 1933 600 7.412 1934 479 5.719 Only a small proportion of the export is yielded by forest lands	A	T.2, 9	CYPRUS
Rhus coriaria	Estimated annual production, 75 tons	B	T.36	PALESTINE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
SUMAC LEAVES— <i>contd.</i> Rhus cotinus		B	T.51	INDIA
See also: Cape Sumac Dwarf Sumac Leaves Indian Sumac Staghorn Sumac White Sumac Leaves				
TAMARISK GALLS Tamarix articulata		D	T.60	PALESTINE
TANEKAHA BARK Phyllocladus trichomanoides	1931 Tons £ 1932 55 690 1933 18 91	C	T.51	NEW ZEALAND
TEREBINTH Pistacia terebinthus		D	T.55	PALESTINE
TERI PODS Caesalpinia digyna		B	T.7, 18, 51	INDIA
TUART BARK EXTRACT Eucalyptus gomphocephala		B		AUSTRALIA
UMGUSU BARK Baikiaea plurijuga		B		SOUTHERN RHODESIA
VALONIA See ACORN CUPS				PALESTINE
WANDOO EXTRACT Eucalyptus redunca var. elata ^o		B		AUSTRALIA

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country												
WATTLE BARK (BLACK WATTLE) Acacia mollissima Acacia pycnantha	Estimated production about 25,000 tons n.s.c. ; exports of <i>all</i> tan barks : <table><tr><td></td><td>Tons</td><td>£</td></tr><tr><td>1931-32</td><td>4,449</td><td>42,191</td></tr><tr><td>1932-33</td><td>3,827</td><td>35,832</td></tr><tr><td>1933-34</td><td>2,067</td><td>21,216</td></tr></table>		Tons	£	1931-32	4,449	42,191	1932-33	3,827	35,832	1933-34	2,067	21,216	A	T.27, 51, 62, 63, 64	AUSTRALIA
	Tons	£														
1931-32	4,449	42,191														
1932-33	3,827	35,832														
1933-34	2,067	21,216														
WESTERN CEDAR BARK Thuja occidentalis		D		CANADA												
WESTERN HEMLOCK BARK Tsuga heterophylla	Potential supplies large	B		CANADA												
WESTERN LARCH BARK Larix occidentalis		D	T.6, 46	CANADA												
WESTERN YELLOW PINE BARK Pinus ponderosa		D	T.47	CANADA												
WHITE SUMAC LEAVES Rhus glabra		D		CANADA												
YAKKADA-WEL BARK Ventilago maderas-patana		C	T.11	CEYLON												
MISCELLANEOUS BARKS Acacia spp. Anogeissus spp. Bauhinia spp. Cassia spp. Parinari spp. Prosopis africana Terminalia spp.		C	T.28, 44	NIGERIA												

MISCELLANEOUS

The products in this section have been classified as follows:—

- (i) Alcohol and Sugars;
- (ii) Animal Products;
- (iii) Balata, Gutta Percha and Latex Rubbers (uncultivated);
- (iv) Materials for Basket Making and Chair Making;
- (v) Insecticides;
- (vi) Paper Making Materials;
- (vii) Thatching Materials;
- (viii) General.

Wood, which is the chief forest source of alcohols and paper-making materials, is itself the major product of the forest. Wood, therefore, with its derivatives, such as wood-pulp, has been excluded from this Index, which relates only to minor forest products. The practice of wood distillation for alcohol and alcoholic derivatives has been carried further in Canada than in any other Empire country. Canada also has the largest trade in the Empire in wood-pulp for paper-making.

Section (ii) includes a number of valuable commodities such as beeswax, lac and shellac, and wild silk cocoons. In addition to the wild sources of supply, beeswax is of course cultivated wherever apiculture is pursued.

Section (iii) covers the forest rubbers. All references to plantation rubbers are excluded.

The Edible Fungus trade of New Zealand and the Vegetable Ivory supplies of the British Solomon Islands, Nigeria and Southern Rhodesia are of interest. Derris Root is cultivated in Malaya (which accounts for about 70 tons out of a total yield of 700 tons) and also in Sarawak, North Borneo, the Netherland East Indies and the Philippine Islands, while experimental cultivation has been undertaken in India, East Africa and elsewhere. A note on the cultivation of the Carob Bean, which is important as cattle feed, is given in the introduction to the Section on Gums and Resins (see page 44).

(i) ALCOHOL AND SUGARS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CAROB BEAN SPIRIT <i>Ceratonia siliqua</i>	n.s.c.; production of alcohol=600 tons annually	A	M.26	PALESTINE

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
MAPLE SUGAR AND SYRUP Acer saccharum and Acer spp.	Estimated Production and Value <i>Maple Sugar</i> Cwt. \$ (ooo) 1932 30,350 606 1933 21,168 389 1934 32,498 562 <i>Syrup</i> Galls. \$ (ooo) 1932 9,203 18 1933 32,994 32 1934 32,073 117	A	M.14, 24, 33	CANADA
MOWHA SPIRIT Madhuca spp. (Bassia spp.)		C	M.16	INDIA
NIPAH SPIRIT Nipa fruticans		B	M.35	SARAWAK
NIPAH SUGAR Nipa fruticans	Piculs* \$ 1932 2,605 6,083 1933 2,503 6,398 1934 1,267 3,130	B	M.35	SARAWAK

(ii) ANIMAL PRODUCTS

BEESWAX†	Cwt. £ 1932 368 1,254 1933 99 272 1934 534 1,404	A	M.5	GAMBIA
BEESWAX	n.s.c.	A	M.16	INDIA
BEESWAX	Cwt. £ 1932 1,050 4,129 1933 954 3,935 1934 1,809 7,050	A	M.3	KENYA

* One Picul=133.33 lb.

† See also Appendix I (Sudan).

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
BEESWAX	No export since 1927	A		NIGERIA
BEESWAX	Cwt. £ 1931 21 85 1932 36 145 1933 15 50	A	M.6, 34	NORTH BORNEO
BEESWAX	n.s.c.	A		NORTHERN RHODESIA
BEESWAX	Cwt. £ 1932 170 953 1933 241 1,348 1934 197 1,104	A	M.7	NYASALAND
BEESWAX	Cwt. \$ 1932 69 1,682 1933 20 509 1934 35 1,048	A		SARAWAK
BEESWAX	Cwt. £ 1932 7,820 31,960 1933 13,600 52,751 1934 8,140 32,707	A	M.23	TANGANYIKA
EDIBLE BIRDS'-NESTS	Tons £ 1932 22 5,896 1933 23 7,038	A	M.6, 11	NORTH BORNEO
EDIBLE BIRDS'-NESTS	Tons \$ (ooo) 1932 24 44 1933 26 39 1934 208 37	A	M.11	SARAWAK
EDIBLE BIRDS'-NESTS	Small production for local use. Figures for entrepot trade: Imports Tons \$ (ooo) 1933 73 322 1934 67 324 Exports 1933 75 214 1934 60 131	B	M.31	MALAY STATES AND STRAITS SETTLEMENTS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
LAC AND SHELLAC RESIN	Exports of all Lac Products: Cwt.(ooo) Rs.(ooo) 1931-32 547 31,374 1932-33 464 12,424 1933-34 731 24,644	A	M.36, 43, 44	INDIA
SILK COCOONS (TASAR)	Exports of cocoons: lb. Rs. 1931-32 4,850 2,101 1932-33 32,500 48,750 1933-34 7,806 11,650	A	M.16	INDIA
SILK COCOONS (WILD)		B	M.13	NIGERIA
SILK COCOONS (WILD)		C	M.13	KENYA COLONY

(iii) BALATA, GUTTA PERCHA AND LATEX RUBBERS
(UNCULTIVATED)

BALATA Mimusops balata	Occasional exports lb. £ 1934 2,020 30	A	M.25, 47	TRINIDAD AND TOBAGO
Mimusops globosa		C	M.25, 47	ST. LUCIA
BALATA (WILD FIG) Ficus vogelii		D	M.39	NIGERIA
EUPHORBIA LATEX Euphorbia spp.	n.s.c. ; possibilities of production are large	B	M.10, 12	SOUTH AFRICA
GETAH PLAI RUBBER Alstonia spp.	Cwt. \$ 1932 119 570 1933 132 646 1934 — —	A	M.8, 42	SARAWAK

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
GUTTA JANGKAR Palaquium spp.	Tons \$(ooo) 1932 119 27 1933 158 34 1934 47 11	A	M.8	SARAWAK
GUTTA PERCHA Palaquium gutta	Considerable entrepot trade Net Exports Tons \$(ooo) 1932 384 360 1933 629 397 1934 199 129	A	M.34, 42	MALAY STATES AND STRAITS SETTLEMENTS
Palaquium sp. Payena sp.	Cwt. £ 1931 312 216 1932 142 106 1933 74 76	A	M.6, 42	NORTH BORNEO
Palaquium oblongifolium	Cwt. \$ 1932 8 393 1933 79 2,518 1934 — —	A	M.8, 42	SARAWAK
Palaquium grande (See also SHEA GUTTA PERCHA)		D	M.49	CEYLON
JELUTONG RUBBER Dyera spp.	Tons \$(ooo) 1931 252 28 1932 299 31 1933 116 19	A	M.15	BRUNEI
Dyera costulata	Large entrepot trade Imports Tons \$(ooo) 1933 5,577 1,168 1934 4,483 806 Exports Tons \$(ooo) 1933 5,150 1,851 1934 3,973 1,335	A	M.42	MALAY STATES AND STRAITS SETTLEMENTS
Dyera lowii	Tons £ 1932 7 98 1933 3 53	A	M.6, 42	NORTH BORNEO

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
JELUTONG RUBBER —contd. Dyera lowii and other spp.	Raw Tons \$(000) 1932 1,726 108 1933 1,403 153 1934 571 50 Refined Tons \$(000) 1932 1,427 328 1933 2,230 726 1934 1,641 476	A	M.8, 42	SARAWAK
MBUNGO RUBBER Landolphia florida		C		ZANZIBAR
MPYO RUBBER ² See MBUNGO RUBBER				ZANZIBAR
SHEA GUTTA PERCHA Butyrospermum parkii (also Mimuso- sops and Chrysophyllum spp.)	Cwt. £ 1931 104 221 1932 56 98 1933 n.s.c. 1934 n.s.c.	A	M.39, 42, 50	NIGERIA
WILD RUBBER Holarrhena spp. Carpodinus spp. Clitandra spp. Conopharyngia spp. Landolphia owariensis See also GETAH PLAI RUBBER		B D D D D	M.39 M.39 M.39 M.39 M.39	NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA SARAWAK

(iv) BASKET MATERIALS AND CANES

BASKETS	£	C		JAMAICA
1931	59			
1932	29			
1933	19			
1934	29			
Gramineae spp.		C	M.8	SARAWAK

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
BAYAL BASKETS Desmoncus polyacanthos		C		BRITISH HONDURAS
CRAB VINE BASKETS Cydista aequinoctialis		C		TRINIDAD AND TOBAGO
MAMOO BASKETS Carludovica plumieri		C		TRINIDAD AND TOBAGO
RATTAN BASKETS Calamus deerratus Ancistrophyllum opacum Ancistrophyllum sp.	Estimated production 1,000 tons per annum Apparently suitable for export	C C	M.40, 50, 53	GOLD COAST SIERRA LEONE
REED BASKETS† Arundo donax	n.s.c.	B	M.51	PALESTINE
RUSH BASKETS† Typha sp. Juncus acutus Juncus maritimus Butomus umbellatus Typha angustata		C C	M.51	CYPRUS PALESTINE
SEGUINE BASKETS Philodendron giganteum		C		TRINIDAD AND TOBAGO
TIETIE See BAYAL BASKETS				
TIRITE BASKETS Ischnosiphon aruma		C		TRINIDAD AND TOBAGO

† See also "REEDS AND RUSHES" in Appendix I (Sudan).

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
CANES Calamus spp.	Imports (chiefly from Singapore) much exceed exports. Figures for 1933-34: Tons Rs.(000) Imports 1,263 297 Exports 15 13	A	M.16	INDIA
Calamus spp. Daemonorops spp. Korthalsia spp. Plectocomia spp. Myrialepis spp. Plectocomiopsis spp. Ceratolobus spp.	Figures for entrepot trade: Imports Tons \$(000) 1933 673 40 1934 1,067 64 Exports 1933 658 103 1934 805 138	A	M.34	MALAY STATES AND STRAITS SETTLEMENTS
Calamus spp. Daemonorops spp.	Tons £ 1931 1,216 9,751 1932 517 4,390 1933 548 4,178	A	M.6, 21	NORTH BORNEO
Calamus scipionum Calamus spp.	Number \$(000) 1932 189 18 1933 214 35 1934 120 67	A	M.8, 34	SARAWAK
Calamus spp. Calamus spp.		C C	M.49 M.27	CEYLON BRUNEI

(v) INSECTICIDES

DERRIS ROOT Derris spp.	Mainly an agricultural product	B	M.20	NORTH BORNEO
Derris spp.		B	M.20	SARAWAK
KIBAAZI Tephrosia noctiflora		D	M.20	ZANZIBAR
MTUPA WAMRIMA Tephrosia vogelii		D	M.20	ZANZIBAR

(vi) PAPER MAKING MATERIALS

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
BAMBOO Arundinaria alpina	85,000 acres under development. No local trade, but export may be expected	B	M.18	KENYA
Arundinaria spp. Bambusa spp.	Large sources of supply. Already being used in Indian paper mills.	B	M.16	INDIA
HALFA GRASS Stipa sp.		D	M.30	PALESTINE
PAPYRUS Cyperus papyrus		D	M.30	PALESTINE
REEDS AND RUSHES Phragmites communis		D	M.30	PALESTINE

(vii) THATCHING MATERIALS

BERTAM Eugeissona tristis		C	M.34	MALAY STATES AND STRAITS SETTLEMENTS
CARAT Sabal mauritiiformis		C	M.48	TRINIDAD AND TOBAGO
COCORITE Maximiliana caribaea		C	M.48	TRINIDAD AND TOBAGO
MENGKUANG Pandanus spp.		C	M.34	MALAY STATES AND STRAITS SETTLEMENTS

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
NIPAH PALM Nipa fruticans	1932	Pieces	£	B	M.6, 22, 35	NORTH BORNEO
	1933	206,680	215			
		29,350	42			
Nipa fruticans				C	M.27, 35	BRUNEI
Nipa fruticans				C	M.34, 35	MALAY STATES AND STRAITS SETTLEMENTS
TIMITE Manicaria saccifera				C	M.48	TRINIDAD AND TOBAGO

(viii) GENERAL

AKAR LAKA See INCENSE WOOD Dalbergia parviflora						
BERRY WAX Myrica cordifolia				C	M.46	SOUTH AFRICA
CAROB BEAN CATTLE FOOD (CAROBS) Ceratonia siliqua	1930	Kilos (000)	£P	A	M.26	PALESTINE
	1931	564	1,503			
	1932	259	615			
	1933	63	218			
	1934	—	—			
		396	1,281			
DOUM NUTS See VEGETABLE IVORY Hyphaene thebaica						NIGERIA

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
DOUM PALM See VEGETABLE IVORY Hyphaene coriacea						KENYA COLONY
EDIBLE FUNGUS Hirneola polytricha	1931	Cwt.	£	A	M.37	NEW ZEALAND
	1932	1,840	9,990			
	1933	1,330	5,900			
		1,028	3,270			
GAHARU See INCENSE WOOD Gonystylus spp.						SARAWAK
INCENSE WOOD Dalbergia sp.	1932	Piculs*	£	A	M.34	NORTH BORNEO
	1933	2,839	499			
		588	103			
Gonystylus spp.	1932	Piculs*	\$	A	M.8	SARAWAK
	1933	766	1,447			
	1934	1,853	1,826			
		1,113	1,506			
Gonystylus spp.	1932	Piculs*	£	A	M.6	NORTH BORNEO
	1933	11	94			
		4	78			
Unidentified	1933	Piculs*	£	A	M.6	NORTH BORNEO
		17	8			
Dalbergia parviflora	Small production for local use only			C	M.34	MALAY STATES AND STRAITS SETTLEMENTS
INCENSE WOOD (GARROO) Aquilaria malaccensis	Small production for local use only			C	M.34	MALAY STATES AND STRAITS SETTLEMENTS

* One Picul = 133.33 lb.

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
KAYU GAHARU See INCENSE WOOD (GARROO)				
KAYU LAKA See INCENSE WOOD Dalbergia sp.				NORTH BORNEO
KEMENYAN See INCENSE WOOD Unidentified				NORTH BORNEO
SOAP BERRIES Sapindus trifoliatus Sapindus mukorossii	n.s.c. ; large quantities available	B	M.16	INDIA
SOLA (SOLAR) PITH Aeschynomene aspera Aeschynomene indica		B	M.16	INDIA
VEGETABLE IVORY† Metroxylon amicarum	Tons £ 1932 1,108 8,818 1933 644 4,591 1934 1,085 6,841	A	M.28	BRITISH SOLOMON ISLANDS
Hyphaene thebaica		B	M.50	NIGERIA
Hyphaene sp.		B	M.2	SOUTHERN RHODESIA
Hyphaene coriacea		C		KENYA COLONY

† See also Appendix I (Sudan).

APPENDIX I PRODUCTS OF THE ANGLO-EGYPTIAN SUDAN

Commodity and Species	Exports	Economic Class	Bibliographical Reference	Country
ARABIC GUM (HASHAB GUM OR TALH GUM) Acacia spp. ; e.g. Acacia vereck (Hashab) Acacia seyal (Talh)	Tons £E. <i>Bleached Gum</i> 1932 192 9,265 1933 250 10,684 1934 168 8,280 <i>Hashab Gum</i> 1932 17,228 434,267 1933 15,274 370,432 1934 19,105 470,098 <i>Talh Gum</i> 1932 2,020 18,259 1933 1,541 12,059 1934 1,680 15,211	A	G.2, 18, 35	SUDAN
BAST FIBRES Hibiscus esculentus Hibiscus cannabinus Hibiscus spp. Sida spp. Abutilon spp. Corchorus spp.	Only small local trade, but resources large	B		"
BEESWAX	Cwt. £E. 1932 330 1,051 1933 520 1,839 1934 942 3,374	A		"
GARAD PODS Acacia arabica	Tons £E. 1932 1,098 4,251 1933 1,250 3,511 1934 854 4,208	A	T.51	"
REEDS AND RUSHES Sorghum sp. Cyperus papyrus Desmostachya cynosuroides	No local trade, but resources very large	D		"

Commodity and Species	Exports			Economic Class	Bibliographical Reference	Country
SHEA NUTS Butyrospermum parkii				B	O.2	SUDAN
VEGETABLE IVORY Hyphaene thebaica		Tons	£E.	A	M.4	"
	1932	3,310	11,351			
	1933	6,858	28,439			
	1934	8,284	39,444			

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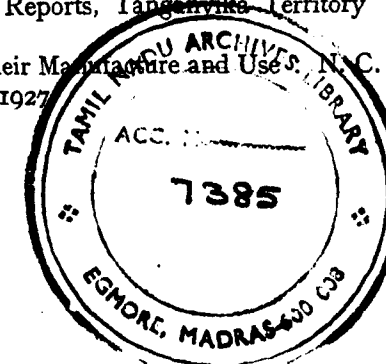
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