# Victorian Year-Book, 1921-22.

## INTRODUCTION.

### GEOGRAPHICAL POSITION, AREA, AND CLIMATE.

**Area of Victoria.**

Victoria is situated at the south-eastern extremity of the Australian continent, of which it occupies about a thirty-fourth part, and it contains about 87,884 square miles, or 56,245,760 acres. It is bounded on the north and north-east by New South Wales, from which it is separated by the River Murray, and by a straight line running in a south-easterly direction from a place near the head-waters of that stream, called The Springs, on Forest Hill, to Cape Howe. On the west it is bounded by South Australia, the dividing line being about 242 geographical miles in length, approximating to the position of the 141st meridian of east longitude, and extending from the River Murray to the sea. On the south and south-east its shores are washed by the Southern Ocean, Bass Strait, and the Pacific Ocean. It lies between the 34th and 39th parallels of south latitude and the 141st and 150th meridians of east longitude. Its extreme length from east to west is about 420, its greatest breadth about 250, and its extent of coast-line nearly 600 geographical miles. Great Britain, exclusive of the islands in the British Seas, contains 88,756 square miles, and is therefore slightly larger than Victoria.

The southernmost point in Victoria, and in the whole of the Australian continent, is Wilson's Promontory, which lies in latitude 39 deg. 8 min. S., longitude 146 deg. 26 min. E.; the northernmost point is the place where the western boundary of the State meets the Murray, latitude 34 deg. 2 min. S., longitude 140 deg. 58 min. E.; the point furthest east is Cape Howe, situated in latitude 37 deg. 31 min. S., longitude 149 deg. 59 min. E.; the most westerly point is the line of the whole western frontier, which, according to the latest correction, lies upon the meridian 140 deg. 58 min. E., and extends from latitude 34 deg. 2 min. S. to latitude 38 deg. 4 min. S., a distance of 242 geographical miles.

**Climate.**

From its geographical position, Victoria enjoys a climate more suitable to the European constitution than any other State upon the Continent of Australia. In the sixty-six years ended with 1921 the maximum temperature in the shade recorded at the Melbourne Observatory and the Weather Bureau was 111·2 deg. Fahr., on the 14th January, 1862; the minimum was 27 deg., on the 21st July, 1869; and the mean was 58·4 deg. Upon the average, on only

four days during the year the thermometer rises above 100 deg. in the shade, and on nineteen days the temperature reaches 90 deg. or over; generally, on about three nights during the year it falls below freezing point. Sultry nights are of rare occurrence. It is only occasionally that a high minimum is recorded. The minimum reading approximates to 70 deg. on an average on only two nights in any one year. The maximum temperature in the sun ever recorded (*i.e.*, since 1859) was 178·5 deg., on the 4th January, 1862. The mean atmospheric pressure noted, first at an Observatory 91 feet above the sea level, and later at the Weather Bureau 115 feet above sea level, was, during the sixty-four years ended with 1921, 30·014 inches; the average number of days on which rain fell each year was 136, and the average yearly rainfall was 25·66 inches. The mean relative humidity of the atmosphere is 68 per cent.; on very warm days it is often 12 per cent., and it has been as low as 2 per cent. Thus the severity of the heat is not so much felt as it would be if there were a relatively high wet bulb, as the temperature by such bulb seldom exceeds 75 deg. The average number of hours of sunshine daily is 6·3, and fogs occur, on an average, on only 18 days in the year.

## MOUNTAINS AND HILLS, RIVERS AND LAKES.

**Mountains and Hills.**

The highest mountain in Victoria is Mount Bogong,* situated in the county of the same name, 6,509 feet above the sea-level; the next highest peaks are—Mount Feathertop, 6,306 feet; Mount Nelson, 6,170 feet; Mount Fainter, 6,160 feet; Mount Hotham, 6,100 feet; Mount McKay, 6,030 feet; and Mount Cope, 6,027 feet; all situated in the same county; also the Cobboras, 6,030 feet, situated between the counties of Benambra and Tambo. These, so far as is known, are the only peaks which exceed 6,000 feet in height; but, according to a list which appears in the *Year-Book* for 1915-16, there are 39 peaks between 5,000 and 6,000 feet high, and 40 between 4,000 and 5,000 feet high; it is known, moreover, that there are many peaks rising to upwards of 4,000 feet above the level of the sea whose actual heights have not yet been determined.

**Rivers.**

With the exception of the Yarra, on the banks of which the metropolis is situated; the Goulburn, which empties itself into the Murray about eight miles to the eastward of Echuca; the La Trobe and the Mitchell, with, perhaps, a few other of the Gippsland streams; and the Murray itself, the rivers of Victoria are not navigable except by boats. They, however, drain the watershed of large areas of country, and many of the streams are used as feeders to

* The highest mountain on the Australian Continent is Mount Kosciusko, in New South Wales, one peak of which is 7,328 feet high.

permanent reservoirs for irrigation and water supply purposes. The Murray, which forms the northern boundary of the State, is the largest river in Australia. Its total length is 1,520 miles, for 1,200 of which it flows along the Victorian border. Several of the rivers in the north-western portion of the State have no outlet, but are gradually lost in the absorbent tertiary flat country through which they pass.

**Lakes.** Victoria contains numerous salt and fresh-water lakes and lagoons; but many of these are nothing more than swamps during dry seasons. Some of them are craters of extinct volcanoes. Lake Corangamite, the largest inland lake in Victoria, covers 90 square miles, and is quite salt, notwithstanding that it receives the flood waters of several fresh-water streams. It has no visible outlet. Lake Colac, only a few miles distant from Lake Corangamite, is a beautiful sheet of water, 10½ square miles in extent, and quite fresh. Lake Burrumbeet is also a fine sheet of fresh water, embracing 8 square miles. The Gippsland lakes—Victoria, King, and Reeve—are situated close to the coast, and are separated from the sea by only a narrow belt of sand. Lake Wellington, the largest of the Gippsland lakes, lies to the westward of Lakes Victoria and King, and is united to the first-named by a narrow channel. South-east of Geelong is Lake Connewarre, connected with the sea at Point Flinders.

A list of mountains and hills, rivers and lakes in Victoria appears in the *Victorian Year-Book* for 1915–16. This was revised by the Surveyor-General, Mr. A. B. Lang, and contains information in regard to heights, lengths, and areas respectively.

## THE FLORA OF VICTORIA.

*By J. R. Tovey, Esq. (National Herbarium, Melbourne).*

### NATIVE FLORA.

Almost the whole of the eastern shore of Port Phillip is fringed by a belt of Coast Tea-tree (*Leptospermum lævigatum*). Occasionally isolated, at other times several together *Casuarina stricta* and *Casuarina suberosa* may be seen. Close to the beach, and along the gullies and streams running into the bay, *Banksia integrifolia* and *Banksia marginata* are met with. More inland the graceful foliage of the native Cherry-tree (*Exocarpus cupressiformis*) imparts some brightness and variety to the landscape; *Eucalyptus viminalis, E. melliodora,* and *E. Stuartiana* are also met with, and on some portions of the coast there are open grassy glades behind the belt of Tea-tree. The shrubs and bushes consist of *Leptospermum myrsinoides* and *L. scoparium, Ricinocarpus pinifolius, Acacia longifolia, A. juniperina, A. oxycedrus,* &c., and in the swampy tracts *Melaleuca ericifolia,* and *M. squarrosa* are found. In addition the following Leguminous shrubs abound,

namely, *Daviesia ulicina, Aotus villosa, Pultenæa paleacea, Dillwynia ericifolia*, and *D. cinerascens, Bossiæa cinerea*, &c.

In Spring many species of orchids are met with—*Pterostylis concinna, P. præcox, P. nutans, P. Toveyana, P. vittata, Acianthus exsertus, Corysanthes pruinosa, Cyrtostylis reniformis;* these are found under the shade of the Tea-trees. On the more open heath land are found *Diuris pedunculata* and *D. sulphurea, Caladenia carnea, C. deformis, C. latifolia*, and *C. Patersonia, Lyperanthus nigricans*, and several species of *Thelymitra*. The bright blue flowers of *Chamæscilla corymbosa* and the purple flowers of *Patersonia glauca* supply a pleasant contrast to the prevailing whites and yellows; *Anguillaria dioica, Burchardia umbellata, Thysanotus, Arthropodium*, and *Hibbertias* are well represented. In moist situations *Droseras* (Sundews) are abundant. The heath family (*Epacridaceæ*) is widely distributed and spread over the whole area; *Cassytha glabella, C. melantha* (*Lauraceæ*), and *Comesperma volubile* (*Polygalaceæ*) will be found twining over and around the bushes; *Hakea nodosa* and *H. pugioniformis* occur near the coast. *Grevillea alpina* is abundant on the foot-hills of the Dandenong Ranges, &c. *Correa alba* and *Correa speciosa* are also represented.

The grasses usually met with are—*Anthistiria imberbis*, "Kangaroo Grass," *Cynodon Dactylon, Distichlis maritima, Eragrostis Brownii, Poa cæspitosa, Stipa semibarbata, S. teretifolia, Sporobolus indicus*, and many others. Ferns are not common near the coast, with the exception of the ubiquitous Bracken (*Pteris aquilina*). In the mountains and gullies an entirely different aspect is given to the scene, the comparatively dwarf Eucalyptus are replaced by gigantic ones, these being *Eucalyptus regnans*, "Mountain ash," *E. obliqua, E. goniocalyx, E. gigantea, E. ovata*, and many others; here also are met with *Prostantheras, Senecios, Cryptandras, Rapanea variabilis, Pittosoporum bicolor*. In some of the mountain gullies the endemic grass *Glyceria dives* is often met with. The chief gully treefern is *Dicksonia antarctica*, the other treeferns *Alsophila australis* and *Cyathea* preferring the more open mountain slopes. In the shady water-courses the King fern (*Todea barbata*) gives variety to the scene. In the moister and more remote ravines, *Hymenophyllum flabellata* and *H. javanicum, Trichomanes venosum*, and *T. humile, Asplenium flaccidum*, &c., abound. *Lomarias* are found on the more open water-courses, whilst in the more open forest, *Davallia dubia* and *Aspidium aculeatum* are conspicuous. The alpine and subalpine flora with their stunted trees and bushes and prostrate heath plants present a strong contrast to the lofty forest trees of the mountain valleys, here *Eucalyptus pauciflora* and *E. Mitchelliana* are met with, and the Eucalypts gradually become more stunted and disappear on the highest ridges. *Kunzea Muelleri, Drimys aromatica, Pimelea axiflora, Ranunculus anemoneus, R. Millani*, and many others are met with. Among the plants belonging to genera not met with on the lowland the following may be mentioned:—*Aciphylla glacialis*,

*Abrotanella nivigea, Ewartia catipes, Epacris bawbawiensis, Podocarpus alpina, Caltha introloba,* and others.

It will be noted that most of our alpine plants belong to orders and genera characteristic to the Australian Continent and that comparatively few are identical with those growing in colder countries.

The district known as the Mallee occupies the north-western corner of Victoria, and its flora bears a great contrast to that of the Eastern Division. Desert plants of every description abound, namely, Saltbushes, *Atriplex, Bassia, Kochia, Salicornia,* &c., *Cassias;* the Compositæ family, is well represented with *Helichrysums, Helipterums, Olearias,* &c. *Loudonia Behrii, Lasiopetalum Behrii* are met with. Some of the sandy ridges are natural flower gardens. (*Banksia ornata*), Desert Banksia, *Grevillea pterosperma* (with orange flowers), *Halgania cyanea,* and *H. lavandulacea* (showy plants with deep blue flowers), *Eremophila Brownii* (reddish brown flowers), *Acacia hakeoides, Podolepis capillaris* (with panicles of golden-flowers), *Bœckea crassifolia* (with small pink and white flowers) with many others grow luxuriously. The Bulokes (*Casuarina glauca* and *C.Luchmanni*) are met with. Several species of Eucalypts (known as Mallees) occur, viz., *Eucalyptus gracilis, E. calycogona, E. ploybractea, E. viridis, E. incrassata, E. oleosa,* &c. Eight species of the *Zygophyllum* (Twinleaf) are found in the Mallee. In the "Pine Plains" *Eucalyptus rostrata* (Red gum) and *Callitris verrucosa* are fairly plentiful. *Beyeria viscosa, Prostanthera aspalathoides* (scarlet flowers), "The Quandong," *Santalum acuminatum,* a tree with drooping leaves, and it is particularly handsome when bearing its orange to crimson fruits. *Grevillea aquifolia, Waitzia acuminata, Goodenias,* and an ornamental grass, *Stipa elegantissima,* are found there.

The Wallaby Grass is the principal fodder grass of the plains. The *Lignum* (*Muehlenbeckia stenophylla*) covers the marshy tracts. Acacias are fairly plentiful in the Mallee and about forty species have been recorded. Many of the plants growing in the Mallee are also found growing on the heath grounds around Port Phillip, for instance, such plants as *Pimelea octophylla, Aotus villosa, Helichrysum apiculatum, Leptospermum lævigatum, Prasophyllum elatum, Pterostylis vittata, Goodenia geniculata* are common in both places. The Tea-tree (*Leptospermum lævigatum*) and the Giant Hop-bush (*Dodonæa viscosa*) are fairly common on the sandy rises. The grasses usually met with are Porcupine Grass (*Triodia irritans*), "Wallaby Grass" (*Danthonia penicillata*), and the Toothed Bent Grass (*Calamagrostis filiformis*); *Glyceria Fordeana, G. ramigera,* and *Poa nodosa, Helichrysum Blandowskianum* (a very showy everlasting), *Boronia cœrulescens* (blue flowers), *Daviesia genisitfolia* (yellow flowers) are conspicuous in parts of the Mallee. *Anthocercis myosotidea,* with flowers somewhat like the "Forget-me-not," is entirely restricted to the North-west.

Near the south-west coast towards Otway are sand dunes grassed with Spinifex, interspersed with numerous bushes of *Correa alba,*

*Leucopogon Richea*, and *Myoporum insulare* and in the deep gullies the rare tree-fern *Cyathea medullaris*, in limited quantities, mixed with the common valley tree-fern (*Dicksonia antarctica*) are met with. On the trunks of the tree-ferns some of the filmy ferns, such as *Hymenophyllum nitens* and *H. javanicum*, grow. *Aspidium capense* and *Asplenium flaccidum* are also met with. In the forest the wiry grass (*Tetrarrhena juncea*) is fairly plentiful, *Notelæa ligustrina*, *Acacia melanoxylon*, *Phebalium Billardieri*, *Hedycarya Cunninghami*, *Lomatia Fraseri*, *Olearia argophylla*, *Bedfordia salicina* are found in the distric

In the south-western corner of Victoria are to be found some members of the Saltbush family, *Salsola Kali* and *Salicornia* species. In swampy ground the following creeping plants—*Samolus repens*, *Seleria radicans*, and *Mimulus repens* are met with. Further inland *Eucalyptus obliqua*, *Acacia stricta*, *A. myrtifolia*, "The Flame Heath" (*Astroloma conostephioides*), *Pimelea linifolia*, and *P. flava*, *Hakea rostrata*, abound.

The following plants which are well worthy of cultivation are found, viz.:—*Kunzea parvifolia*, *Goodia lotifolia* (yellow flowers), *Pimelea ligustrina* (cream), *Indigofera australis* (lilac), and *Correa speciosa* (red). The "Grass-tree" (*Xanthorrhœa australis*) adorns the landscape with their stately flower spikes and strong bayonet-shaped leaves, whilst the "Tassel Cord-rush" (*Restio tetraphyllus*) flourishes in the swamps.

In the Grampian Mountains many beautiful flowers, trees and shrubs, are met with, the most notable of which are:—*Thryptomene Mitchelliana*, *Lhotzkya genetylloides*, and *Calytrix tetragona*, all are fairly plentiful. *Pultenæa costata*, *Pultenæa subalpina*, better known as *P. rosea*, *Calytrix Sullivani*, *Eucalyptus alpina*, and *Grevillea Williamsoni*, *Trymalium D'Altoni*, and *T. ramosissima*, which are endemic to Victoria, are confined to the Grampians; *Eucalyptus obliqua* and *Eucalyptus macrorrhyncha* are met with between the hills. These mountains are rich in Orchidaceous plants, for instance *Caladenia iridescens*, *C. Menziesii*, *C. carnea*, *Thelymitra longifolia*, *T. flexuosa*, *T. pauciflora*, *Prasophyllum brevilabre*, and many others with their bright colours impart brightness to the scene. *Melaleuca decussata* and *Humea elegans* are also worthy of mention, whilst *Boronia pinnata* (white and pink flowers), *Calectasia cyanea*, "the Blue Tinsel Lily," *Brunonia australis*, *Conospermum Mitchelli*, and *Baurea sessilifolia* add charm to the landscape.

As space is limited, I have found it necessary to make the foregoing details on the flora as brief as possible. Unfortunately, from a botanical point of view, the native flora is gradually being restricted to the more distant or inaccessible districts. This is chiefly due to the onward march of agricultural progress, and in many cases to the inroads of alien plants.

In the district around Port Phillip, from Sandringham to Mordialloc, the flora is fast disappearing owing to the expansion of the residential area around the coast. It is to be regretted that a National Park has

not been established in the district, where the native flora could be preserved so that future generations would be able to obtain some idea of the flora which once adorned the landscape.

Victoria has a fair number of endemic species, there being at least fifty-eight, but further investigations may prove that some of the later described plants may have a wider range. The number of endemic species for the various genera are—Acacia, 2; Brachycome, 1; Caladenia, 2; Calytrix, 1; Carex, 1; Centrolepis, 1; Chiloglottis, 2; Epacris, 1; Erigeron, 1; Eucalyptus, 4; Glyceria, 1; Grevillea, 4; Haloragis, 1; Lepidosperma, 1; Leucopogon, 2; Olearia, 5; Prasophyllum, 4; Prostanthera, 3; Pterostylis, 2; Pultenæa, 11; Ranunculus, 1; Stipa, 4; Tetratheca, 1; Trymalium, 2.

During the period 1917–22 eleven species new to science have been added to the flora; of these, four have been added during 1921–22, viz.:—*Brachycome Tadgellii*, Tovey and Morris (*Compositæ*), *Pultenæa recurvifolia*, Williamson, and *Pultenæa costata*, Williamson, members of the Leguminosæ, *Trymalium ramosissima*, *Audas*, a member of the Rhamnaceæ; the four species are at present confined to Victoria. In addition, four varieties new to science have been added to the list of native flora.

The records for the periods 1917–18 to 1920–21 will be found in the *Year-Books*. During 1921–22, five species not previously recorded for Victoria have been added to the list of the native flora, *i.e.*, *Frankenia pulverulenta*, L. (*Frankeniaceæ*), found also in South Australia and in the Mediterranean regions. *Hibiscus Farragei*, F. v. M. (*Malvaceæ*), previously recorded from New South Wales, Queensland, North, South, and Western Australia. *Pultenæa graveolens*, Tate (*Leguminosæ*), previously found only in South Australia. *Caladenia cardiochila*, Tate (*Orchidaceæ*), previously recorded from South Australia only. *Corysanthes bicalcarata*, R. Br., previously recorded from New South Wales, Queensland, and Tasmania.

In addition to the foregoing, several varieties and synonyms have been raised to specific rank; several new records have also been made to the regional distribution of various native plants, and many changes have been made in the names of the Victorian flora, in order to bring them into line with the rules of botanical nomenclature.

## INTRODUCED FLORA.

During the period under review (1917–22), thirty-one foreign plants were recorded as naturalized aliens, thus averaging six a year. In addition, twenty other exotics have been recorded as growing wild in Victoria, approximately four a year. Most of the naturalized aliens are useless or troublesome weeds, and some of them have been brought under the provision of the Thistle Act.

A weed has been described as a plant growing out of its proper place.

The majority of the weeds which have reached this country have been accidentally introduced. The chief source of introduction in the past

was through the use of impure agricultural seed, by imported fodder and by ship's ballast, &c. The dispersal of weeds is caused through the agency of the wind, water, animals and birds. When a weed has been allowed to grow and ripen its seed, it will take time and money to get rid of it. It is therefore necessary as far as possible to prevent the entry of any new weeds.

## NATURALIZED ALIENS.

During the period 1921–22 the following were recorded:—

*Aponogeton distachyum*, Thunb., "Naiadiaceæ," a native of South Africa. *Brachypodium distachyum*, Beauv. (Gramineæ), a native to the Mediterranean Regions. *Mœnchia erecta*, Sm. (Caryophyllaceæ), a native of Europe. *Pelargonium graveolens*, L'Herit. (Geraniaceæ), native to South Africa. *Salpichroa rhomboidea*, Miers (Solanaceæ), native to South America. *Brachypodium distachyum* has some value as a pasture plant, but is not in the first rank of fodder grasses. *Pelargonium graveolens* is a useful bee plant, whilst *Salpichroa rhomboidea* may become troublesome if left unchecked.

## EXOTICS RECORDED FOR THE FIRST TIME.

*Bromus tectorum*, L. (Gramineæ); *Europs abrotanifolius*, D.C. (Compositæ), ; *Phalaris paradoxa*, L. (Gramineæ); *Phormium tenax*, Forst. (Liliaceæ); *Bromus tectorum* is a useless and troublesome grass; *Phalaris paradoxa* has a slight pasture value, whilst *Phormium tenax* is a useful fibre plant.

Records for the years 1917–18 to 1920–21 will be found in the *Year-Books* for those periods.

## PLANTS PROCLAIMED UNDER THE THISTLE ACT.

Since the Thistle Act was enacted in 1890, 38 species exclusive of Dodders have been brought under the provisions of the Act for the whole State. Of these, three are native plants, *i.e.*, *Cyperus rotundus*, which is troublesome in gardens and arable land; *Loranthus celastroides* and *Loranthus pendulus* are parasitic on trees, being very destructive to them. All plants known as Dodder (*Cuscuta*), native and introduced, are also proclaimed for the whole State. There are two species of native Dodder, *i.e.*, *Cuscuta australis* and *Cuscuta tasmanica*.

Twenty-eight species of plants have been proclaimed for various municipalities throughout the State. Of these, two are native plants, *i.e.*, *Acacia armata* and *Cassinia arcuata*.

## PHYSICAL GEOGRAPHY AND GEOLOGY OF VICTORIA.

An article on the "Physical Geography and Geology of Victoria," by W. Baragwanath, Esq., Director of Victorian Geological Survey, appeared in the *Year-Book* for 1920–21, on pages 3 to 13.

### ADDENDUM TO THE ABOVE ARTICLE.

*Supplied by Mr. Baragwanath in March*, 1922.

Since the article on Geology was prepared for the *Year-Book*, 1920–21, geological surveys of the Waratah Bay District have indicated that the quartzites, cherts and other indurated rocks, hitherto considered possibly Heathcotian (Pre-Ordovician), are conformable in regard to bedding with the fossiliferous Upper Silurian rocks of the district. This may mean that the indurated beds are part of the Silurian series, but they have yielded no fossils to confirm or refute this view. An area of Upper Ordovician strata containing graptolites was discovered near Waratah, but its relationship to the Silurian and indurated beds is masked by Recent and Tertiary deposits.

After many years' work, most of the mountainous country between Tallangatta and Corryong, Upper Murray District, has been geologically surveyed and contoured. Areas formerly considered to be Lower Ordovician slates or metamorphic rocks of unknown age have been proved to consist of Upper Ordovician beds. The minerals fluorspar and scheelite are attracting attention in the district.

Geological mapping is in progress in the Mornington Peninsula, a district of considerable interest that has hitherto received little attention. An area of Upper Ordovician beds has been discovered, the Lower Ordovician strata are yielding sufficient graptolites to enable them to be correlated with similar rocks elsewhere; information bearing on the great Tertiary earth movements is accumulating and a considerable deposit of impure Tertiary lignite has been found.

Near Ballan, Permo-Carboniferous glacial beds have been found on the northern or upthrow side of the Greendale fault, at an elevation considerably above the corresponding formation at Bacchus Marsh.

Good brown coal 20 feet to 110 feet thick, and estimated at 3,000,000 tons, has been proved by boring near Bambra, 7 miles south of Winchelsea. The basin is about a quarter of a square mile in extent and the overburden averages 25 feet thick. The deposit is being opened up by private enterprise.

The examination by Mr. F. Chapman, Hon. Paleontologist to the Survey, of some lignite remains has proved the former existence of timber closely related to that of the present forest flora of Victoria, such as an *Acacia* related to *A. penninervis*, from the Deep Leads near Ararat, and a *Eucalyptus* related to the Redgum *E. rostrata*, from Boolara, near Morwell, probably of Pliocene and Miocene ages respecrively. Numerous fossil fruits, from Yarragon and Alberton West, have been proved to be similar to those from the Deep Leads of Haddon

and elsewhere. A chalky limestone from Greenwald, when submitted to a microscopic examination, compared closely in physical texture with the English chalk, though it does not contain the same quantity of coccolith bodies found in whitening. This deficiency is made up by the presence of myriads of tiny rodlike bodies which produce an unctuous condition. This deposit may, therefore, be of some commercial value

## THE FAUNA OF VICTORIA.

An article on the "Fauna of Victoria," by the late T. S. Hall, M.A., D.Sc. (University of Melbourne), and J. A. Kershaw, Esq., F.Z.S., Curator of the National Museum, Melbourne, appeared in the *Year-Book* for 1916–17, and addenda thereto by Mr. Kershaw in the *Year-Books* for 1918–19 and 1920–21.

## THE HISTORY OF VICTORIA.

An article on this subject contributed by Ernest Scott, Professor of History in the University of Melbourne, appeared in the *Year-Book* for 1916–17, pages 1 to 31.

## CHRONOLOGICAL TABLE OF LEADING EVENTS.

The *Year-Book* for 1916–17 contained, on pages 31 to 50, a chronological table of leading events in Victorian history for the years 1770 to 1900 inclusive, and of leading events in Victorian and other history for the years 1901 to 1916 inclusive. The leading events in the four years 1917 to 1920 were given in the volumes relating to those years.

Some of the principal events in Victorian and other history during 1921 are given in the table which follows :—

| | | |
|---|---|---|
| 1921. | 9th | January.—A pleasure launch developed a leak and sank in the Hopkins River, Warrnambool. Ten persons were drowned. |
| | 4th | February.—Arrangements made to extinguish the Commonwealth debt of £92,480,000 to Great Britain by an annual payment of £5,218,923, the payments to continue until the whole of the principal is repaid. |
| | 11th | February.—Death of Sir H. N. P. Wollaston, K.C.M.G., LL.D., ex-Comptroller-General of the Customs Department, aged 74 years. |
| | 17th | February.—Death of Sir Frank Madden, formerly Speaker of the Legislative Assembly, aged 73 years. |
| | 24th | February.—Arrival in Melbourne of the Right Hon. the Earl of Stradbroke, K.C.M.G., C.B., C.V.O., C.B.E., to assume the office of Governor of Victoria. |

1921. 28th March.—Lieutenant J. C. McIntosh, aviator, met with a fatal accident at Pithara, in Western Australia. Lieutenant McIntosh accompanied Lieutenant Parer in a flight from England to Australia.

31st March.—A.I.F. ceased to exist.

4th April.—Census of the Commonwealth taken. Population enumerated, 5,436,794, viz.: 2,762,758 males, and 2,674,036 females.

17th May.—The tender of a United States firm for £379,000 accepted for the Morwell electrical installation.

16th June.—The resignation of Justice Higgins as President of the Commonwealth Court of Conciliation and Arbitration announced.

27th July.—The Lawson Ministry defeated in the Legislative Assembly. A dissolution was granted.

1st August.—Mr. T. J. Ryan, acting leader of the Federal Opposition, died at Barcaldine, Queensland.

8th August.—Diggers' Loan of £10,000,000 placed on the market by the Commonwealth Government. The loan was over-subscribed.

20th August.—The Rev. Harrington Clare Lees, M.A., vicar of Swansea, Wales, appointed Anglican Archbishop of Melbourne.

30th August.—Elections for the 27th Victorian Parliament held throughout the State.

31st August.—Death of Mr. R. Murray Smith, C.M.G., aged 89 years.

7th September.—Arrival in Sydney of Viscount Northcliffe, proprietor of the *London Times* and other newspapers, on a visit to Australia.

19th September.—Great colliery explosion at Mount Mulligan coal mine, Queensland. Seventy-five men lost their lives—the whole of the staff which was underground at the time.

28th September.—Return to Melbourne of the Right Hon. W. M. Hughes, from the Imperial Conference in London.

11th October.—Conference between representatives of the British Government and Irish delegates to consider the future Government of Ireland. A settlement was arrived at which was considered satisfactory.

13th October.—Senator Pearce left Australia for Washington to attend the Disarmament Conference as a representative of the Commonwealth.

10th November.—Appointment of Sir Joseph Cook as High Commissioner for Australia in London announced.

12th November.—The Disarmament Conference opened at Washington, United States.

31st December.—Sir Joseph Hood retired from the Supreme Court Bench.

## PROGRESS OF STATE SINCE 1842.

The following table has been prepared to illustrate the advance made by the State since 1842, the year of the introduction of representative government into New South Wales, which then included the Port Phillip district. The years 1850 and 1855 have been chosen —the former as being the year immediately preceding the separation of the Colony from New South Wales, and the latter as the date of

## STATISTICS OF VICTORIAN PROGRESS, 1842 TO 1921.

| —— | 1842. | 1850. | 1855. | 1861. | 1871. | 1881. | 1891. | 1901. | 1921. |
|---|---|---|---|---|---|---|---|---|---|
| Population, 31st December .. | 23,799 | 76,162 | 364,324 | 541,800 | 747,412 | 879,886 | 1,157,678 | 1,210,882 | 1,550,952 |
| Revenue .. .. £ | 87,296 | 259,433 | 2,728,656 | 2,592,101 | 3,734,422 | 5,186,011 | 8,343,588 | 7,712,099 | 19,054,475 |
| Expenditure from Revenue £ | 124,631 | 196,440 | 2,612,807 | 3,092,021 | 3,659,534 | 5,108,642 | 9,128,699 | 7,672,780 | 18,941,698 |
| Public Funded Debt £ | .. | .. | 480,000 | 6,345,060 | 11,994,800 | 22,426,502 | 43,638,897 | 49,546,275 | 96,164,546 |
| Gold produced .. oz. | .. | .. | 2,793,065 | 1,967,453 | 1,355,477 | 858,850 | 576,400 | 789,562 | 114,602 |
| Wool produced .. lbs. | 2,752,330 | 16,345,468 | 22,470,443 | 22,640,745 | 37,177,646 | 45,970,560 | 76,503,635 | 73,235,138 | 90,250,571 |
| Butter produced .. „ | .. | .. | .. | .. | .. | .. | 16,703,786 | 46,857,572 | 64,938,458 |
| Agriculture— | | | | | | | | | |
| Land in cultivation acres | 8,124 | 52,341 | 115,060 | 427,241 | 793,918 | 1,582,998 | 2,512,593 | 3,647,459 | 6,425,250 |
| Wheat .. .. bushels | 55,360 | 556,167 | 1,148,011 | 3,607,727 | 4,500,795 | 8,714,377 | 13,679,268 | 12,127,382 | 39,468,625 |
| Oats .. .. „ | 66,100 | 99,535 | 614,614 | 2,136,430 | 3,299,889 | 3,612,111 | 4,455,551 | 6,724,900 | 10,907,191 |
| Wine .. .. gallons | .. | 4,621 | 9,372 | 47,568 | 713,589 | 539,191 | 1,554,130 | 1,981,475 | 2,222,305 |
| Live Stock—Horses No. | 4,065 | 21,219 | 33,430 | 84,057 | 181,643 | 278,195 | 440,696 | 392,237 | 487,503 |
| „ Cattle „ | 100,792 | 378,806 | 534,113 | 628,092 | 799,509 | 1,286,677 | 1,812,104 | 1,602,384 | 1,575,159 |
| „ Sheep „ | 1,404,333 | 6,032,783 | 4,577,872 | 6,239,258 | 10,002,381 | 10,267,265 | 12,928,148 | 10,841,790 | 12,171,084 |
| „ Pigs .. „ | .. | 9,260 | 20,686 | 43,480 | 177,447 | 239,926 | 286,780 | 350,370 | 175,275 |
| Total Imports—Value £ | 277,427 | 744,925 | 12,007,939 | 13,532,452 | 12,341,995 | 16,718,521 | 21,711,608 | 18,927,340 | * |
| „ Exports—Value £ | 198,783 | 1,041,796 | 13,493,338 | 13,828,606 | 14,557,820 | 16,252,103 | 16,006,743 | 18,646,097 | * |
| Imports, Oversea—Value £ | .. | .. | .. | 10,991,377 | 9,201,942 | 11,481,567 | 13,802,598 | 12,686,880 | 57,607,027 |
| Exports „ „ £ | .. | .. | .. | 12,209,794 | 12,843,451 | 12,318,128 | 11,403,922 | 13,075,259 | 34,878,880 |
| Shipping .. .. tonnage | 78,025 | 195,117 | 1,133,283 | 1,090,002 | 1,355,025 | 2,411,902 | 4,715,109 | 6,715,491 | 9,314,944 |
| Railways open .. miles | .. | .. | .. | 214 | 276 | 1,247 | 2,764 | 3,238 | 4,274 |
| Telegraph wire .. „ | .. | .. | .. | 2,586 | 3,472 | 6,626 | 13,989 | 15,356 | 35,610 |
| Postal business—Letters No. | 97,490 | 381,651 | 2,990,992 | 6,109,929 | 11,716,166 | 26,308,347 | 62,526,448 | 83,973,499 | 180,797,030 |
| „ Newspapers „ | 147,160 | 381,158 | 2,349,656 | 4,277,179 | 5,172,970 | 11,440,732 | 22,729,005 | 27,104,344 | 31,660,611 |
| Savings Bank Deposits £ | .. | 52,697 | 173,090 | 582,796 | 1,117,761 | 2,569,438 | 5,715,687 | 9,662,006 | 47,981,019† |
| Factories— | | | | | | | | | |
| Number of .. .. | .. | .. | 278 | 531 | 1,740 | 2,488 | 3,141 | 3,249 | 6,532 |
| Hands employed .. | .. | .. | .. | 4,395 | 19,468 | 43,209 | 52,225 | 66,529 | 140,743 |
| Value of machinery, plant, land, and buildings £ | .. | .. | .. | .. | 4,725,125 | 8,044,296 | 16,472,859 | 12,298,500 | 35,492,735 |
| Value of articles produced £ | .. | .. | .. | .. | .. | 13,370,836 | 22,390,251 | 19,478,780 | 106,008,294 |
| State Education— | | | | | | | | | |
| Number of Primary schools | .. | 61 | 370 | 671 | 988 | 1,757 | 2,233 | 1,967 | 2,280 |
| Expenditure on Education £ | .. | .. | 115,099 | 162,547 | 274,384 | 546,285 | 726,711 | 701,034 | 2,117,151 |
| Total value of rateable property in municipalities .. £ | .. | .. | .. | 29,638,091 | 50,166,078 | 87,642,459 | 203,351,360 | 185,101,993 | 399,502,745 |
| Friendly Societies— | | | | | | | | | |
| Number of Members .. | .. | .. | 1,698 | 7,166 | 35,706 | 47,908 | 89,269 | 101,045 | 143,651 |
| Total funds .. £ | .. | .. | .. | .. | 213,004 | 475,954 | 961,933 | 1,370,604 | 3,173,678 |

NOTE.—In a few instances in the earlier years, where it is not possible to give figures for the exact date or period shown, those for the nearest dates or periods are given. Gold was discovered in 1851, in which year the return was 145,137 oz. Butter figures were not collected prior to 1891.

* Owing to the Commonwealth authorities having discontinued the keeping of records of Inter-State trade the value of the total imports and exports of the State are not available for a later year than 1909. For that year the imports were valued at £28,150,198 and the exports at £29,896,275.

† Including deposits in the Commonwealth Savings Bank.

the introduction of responsible government for Victoria. The subsequent years are census years :—

The population of the State at the end of 1842 was 23,799; at the end of 1921 it had increased to 1,550,952. During the period 1842–1921 the revenue steadily increased from £87,296 to £19,054,475. There was no public debt until after separation. In 1855 the State indebtedness was £480,000; in 1921 the funded debt had reached £96,164,546, which has been spent on revenue-yielding and other works of a permanent character. The land in cultivation in 1842 was slightly over 8,000 acres; it now amounts to 6,425,250 acres. The value of oversea imports in 1861 was £10,991,377; in 1920–21 it was £57,607,027. Oversea exports amounted to £12,209,794 in 1861, and to £34,878,880 in 1920–21. No railways or telegraphs were in existence up to the end of 1855; in 1861 there were 214 miles of railway open, and in 1921 there were 4,274 miles; 2,586 miles of telegraph wires had been erected up to 1861, and 35,610 miles up to the 30th June, 1921. Postal business in letters and newspapers has expanded rapidly during the period covered by the table, and there has also been a large increase in Savings Bank deposits, which rose from £52,697 in 1850 to £47,981,019 in 1921.

The expenditure on education amounted to £115,000 in 1855, and had increased to £2,117,151 in 1920–21. Members of friendly societies numbered 1,698 in 1856, and 143,651 in 1920—the funds amounting to £213,000 in 1871 and £3,173,678 in 1920. Hands employed in factories rose from 19,468 in 1871 to 140,743 in 1920–21. The total value of rateable property in municipalities, which was £29,600,000 in 1861, was £399,502,745 in 1920–21.

## CONSTITUTION AND GOVERNMENT.

### The Present Constitution.

**Reform Act 1903.**

After the establishment of the Federal Government it became evident that the representation of the States in the States Houses was excessive, and steps were taken to reform the States Constitutions. Accordingly an Act "to provide for the Reform of the Constitution" was passed in Victoria and reserved for the Royal assent on 7th April, 1903. After an interval of some months the Royal assent was proclaimed on 26th November, 1903. This Act, entitled *The Constitution Act* 1903, provided for a reduction in the number of responsible Ministers from ten to eight, and in their salaries from £10,400 to £8,400; and decreased the number of members of the Legislative Council from 48 to 35, including one special representative for the State railways and public servants; but increased the number of electoral provinces from fourteen to seventeen, each being now represented by two members elected for six years—one retiring every three years by rotation, except at a general election, when one-half of the members are to be elected for only three years. The