years except seven; the mean atmospheric pressure of 1886 was the highest with three exceptions; the number of days on which rain fell was exceeded in all the other years except nine; the amount of rainfall, which had been steadily increasing since 1882, and was in 1885, with one exception, higher than in any year since 1875, showed a marked falling-off in 1886.

Mean temperature in Melbourne and elsewhere.

781. The mean temperature of Melbourne over a series of years (57·2°) corresponds with that of Bathurst, a town in the interior of New South Wales, situated 2,150 feet above the sea-level, and is about equal to that of Washington (56·9°), Bordeaux (57·0°), Madrid (57·2°), and Marseilles (58·3°). It is lower by $5\frac{1}{3}$ degrees than that of Sydney (62·5°), and lower by $7\frac{1}{3}$ degrees than that of Adelaide (64·6°).*

Mean rainfall in Melbourne and elsewhere.

782. The mean rainfall in Melbourne (25·46in.) corresponds approximately with that of Ventnor in England (25·5in.), Bathurst in New South Wales (25·0in.), and Toulouse in France (24·9in.). It is above that in London (24·0in.), Nottingham (23·7in.), or Paris (22·9in.), is 5 inches above that in Adelaide (20·5in.), but is only about half as much as that in Sydney (50·1in.).*

Fall of snow in Melbourne, 1882.

783. It may be remarked that a fall of snow took place in Melbourne on the 26th July, 1882, on which day the lowest temperature in the shade was 37° and the highest 44°. This is a most unusual occurrence, no other such instance being remembered since the 29th and 30th August, 1849, when snow fell heavily.

Meteorology elsewhere treated on.

784. An extended account of the meteorology and climate of Victoria will be found in the *Victorian Year-Book*, 1874, paragraphs 54 to 95.

PART IV.—PRODUCTION.

Alienation of Crown lands.

785. The mode of disposing of Crown lands in Victoria has undergone numerous changes.† At first it was necessary that all lands should be offered at auction before passing into the hands of private individuals, an upset price, according to its value, being placed upon it by the Government. Until 1840 the minimum upset price was 12s. per acre, it was then raised to 20s. Land which had passed the auctioneer's

Special surveys.

* The observations, except those for Melbourne and Adelaide, have been taken from a work entitled *Physical Geography and Climate of New South Wales*, by H. C. Russell, F.R.A.S., Government Astronomer of that colony.

† Mr. N. Wimble, of the Department of Lands and Survey, has been kind enough to verify the facts in the first sixteen paragraphs of this part.

hammer without being bid for was open to be bought by any one at the upset price. Large blocks of land, called special surveys, and a block of a square mile in extent upon each squatting run, were, under certain Orders in Council, exempted from auction, and were permitted to be purchased at £1 per acre.

Land Act 1860 (24 Vict. No. 117).

786. In 1860 the system was changed, and a law was passed permitting surveyed country lands to be selected at a uniform upset price of £1 per acre, the only exception being where two or more selectors applied simultaneously for one block, in which case a limited auction, confined only to such applicants, was to take place. The successful selector had the option of either paying for the whole of his block in cash or only for half; in the latter case, renting the other half at 1s. per acre per annum, with the right to purchase at the same rate per acre as he paid for the first moiety.

Land Act 1862 (25 Vict. No. 145).

787. Another change was made in 1862. Large agricultural areas were proclaimed open for selection, within which land could be selected, at a uniform price of £1 per acre, lot being substituted for limited auction in the event of there being more than one applicant for an allotment. For one-half of the allotment it was necessary to pay at once; but for the remainder the purchase-money was allowed to be paid by instalments of 2s. 6d. each, extending over eight years. No more than 640 acres could be selected by one person in twelve months. Three alternative conditions, to be complied with within twelve months of the date of selection, were imposed upon selectors under this Act:—Either that the selections be enclosed with a substantial fence; or that a habitable dwelling be erected on the land; or that one acre out of every 10 acres selected be cultivated.

Amending Land Act 1865 (28 Vict. No. 237).

788. The next change was made in 1865, when an Act was passed providing that agricultural land could be acquired by payment of 2s. per acre per annum during three years, and by effecting improvements to the extent of 20s. per acre within two years of the commencement of the lease. These conditions having been complied with, the lessee might, at the expiration of three years, if he resided upon the land, purchase his holding at £1 per acre; or, if not, he could require his leasehold to be offered at auction at the uniform price of 20s. per acre, with the value of improvements added in his favour. There was also a clause* whereby land adjacent to gold-fields could be occupied in blocks of 20 acres each without having been previously surveyed. This clause was originally framed to meet the demand for the occupation of land

* The 42nd clause.

adjacent to gold-fields, but its operation was gradually extended by regulation to a circuit of thirty miles around gold-fields, and the same individual was allowed to hold several 20-acre licences for the occupation of adjacent land to the total extent of 160 acres. The licensee, in all cases, was bound either to reside on his holding or to fence and cultivate a certain portion.

Land Act 1869 (33 Vict. No. 360).

789. The operation of the last-mentioned clause was so successful in leading to the occupation of the land that free selection before survey was the main principle of the next Land Act, which was passed in 1869, and came into operation on the 1st February, 1870. Under it, the area allowed to be selected by one person was limited to 320 acres; and it was further provided that the selection should be held under licence during the first three years, within which period the licensee was obliged to reside on his selection at least two and a half years, to enclose it, to cultivate 1 acre out of every 10, and generally to effect substantial improvements to the value of 20s. per acre. The rent payable during this period was 2s. per acre per annum, which was credited to the selector as part payment of the principal, viz., 20s. per acre without interest.* At the expiration of the three years' licence, the selector, if he obtained a certificate from the Board of Land and Works that he had complied with these conditions, could either purchase his holding at once, by paying up the balance of 14s. per acre, or might convert his licence into a lease extending over seven years, at an annual rental of 2s. per acre, which was also credited to the selector as part payment of the fee-simple. On the expiry of such lease, and due payment of the rent, the land became the freehold of the selector. The Statute also contained provision for the sale of Crown lands by auction at an upset price of £1 per acre, or such higher sum as the Governor may direct, the whole extent to be sold in any one year not to exceed 200,000 acres.

Amending Land Act 1878 (42 Vict. No. 634).

790. The Land Act of 1869, just described, was amended by the Land Act 1878, which came into operation at the beginning of 1879. The principal alterations made by this amending Act, as regards selection for agricultural purposes, was to increase the period during which the land was held under licence from three years to six years, and the time of compulsory residence from two and a half years to five years, and to reduce the annual rental per acre for a licence or lease from 2s. to 1s., which thereby allowed the payments to extend over a period of twenty years instead of ten years as formerly.* It also contained provision for

* See paragraph 813 *post.*

selection by persons who did not desire to reside on their selections. In such cases, however, the rent was 2s. per acre, and the total price to be paid for the land £2 per acre. Improvements to the value of £2 per acre, moreover, had to be made during the six years' licence, of which at least half were to be made before the expiration of the third year. Such licences are not to be issued in any one year for an aggregate area of more than 200,000 acres. Both these Acts expired by effluxion of time on the 31st December, 1884.

Pastoral occupation under Land Act 1869.

Runs.

791. According to the Land Act 1869, the unalienated and unselected Crown lands* were occupied for pastoral purposes either as "runs" under licence or lease, or as "grazing rights." Runs were of two kinds: those in existence at the time of the passing of the Land Act 1869 (viz., on 29th December, 1869), and not since forfeited—described in the Act as "Existing runs"; and those created since that date—described in the Act as "New runs." The former kind, which were by far the more numerous and extensive, were held under pastoral licence renewable annually, and were unlimited as to size. The latter, which were but few in number, were held under lease for any term not exceeding 14 years—the right to the lease having, in the first instance, been purchased at auction—and were not permitted to be of larger extent than sufficient to carry 4,000 sheep or 1,000 head of cattle. An important privilege enjoyed by lessees of "new runs" was that they were entitled to the pre-emption of 320 acres on which their improvements were situated at the rate of £1 per acre.† The annual rent payable for both descriptions of runs was assessed in accordance with the grazing capability of the land licensed or leased, on the basis of 1s. for every sheep and 5s. for every head of cattle the run was capable of carrying.

Grazing rights.

As, however, the right of pre-emption to 320 acres at £1 per acre, without conditions as to residence, cultivation, &c., was considered too great a sacrifice of the public estate, the occupation of "new runs" was discouraged by the Government; but, in order to allow of the waste lands of the Crown being used for pastoral purposes, advantage was taken of a provision embodied in sub-section 7 of the 47th section of the Act, whereby the Governor in Council was empowered to grant a licence—known as a "grazing right"—to depasture live stock upon any park lands, reserves, or other Crown lands not forming part of any run or common. Under this provision, the unoccupied pastoral lands were divided up into blocks and offered for tender under annual licence.

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* Since the 1st December, 1883, the Crown lands situated in the Mallee country have been dealt with under a special Act.—See next paragraph.

† Under an Order of Her Majesty's Council, the lessees of the old or "existing" runs had been allowed a "pre-emptive right" to 640 acres.

792. An Act dealing with the unalienated lands situated in the north-western portion of the colony, comprising about one-fifth of its extent, or some 11½ million acres wholly or partially covered with the various species of stunted trees of which the "Mallee scrub" is composed, was passed in 1883. This Act, entitled the Mallee Pastoral Leases Act 1883 (47 Vict. No. 766), came into force on the 1st December, 1883. It divides the country just described into two main divisions—the larger division containing about ten million acres, being known as the "Mallee country"; and the other containing about one and a half million acres, and situated along the southern and eastern borders of the Mallee country, being called the "Mallee border." Mallee Pastoral Leases Act 1883.

793. The Act directs that the "Mallee country" be divided into blocks of various sizes, each block to be subdivided into two parts. For either of these, at the option of the applicant, a lease may be granted under certain conditions, the lessee being also bound to occupy the other division. The principal conditions are that the lessee destroy all vermin (native dogs, rabbits, &c.) upon the whole block within the first three years, surrender to the Crown the unleased portion at the end of five years, and keep in good condition and repair all improvements made upon the land. A lease for a Mallee block may be granted for any term of years not longer than 20 from the commencement of the Act, at the end of which term (viz., on the 1st December, 1903) the land, with all improvements, reverts to the Crown. Every person who had occupied under pastoral or grazing licence any portion of the Mallee country for two years prior to the 1st December, 1883, was entitled to take up one Mallee block comprising the whole or any portion of the area occupied by him; but, in the event of his not applying for this privilege within one month of the passing of the Act, the right of lease was to be sold by auction to the highest bidder. The annual rent to be charged for the leased portion of the block was fixed at 2d. for each sheep or 1s. for every head of cattle depastured during the first five years, 4d. for each sheep or 2s. for each head of cattle during the second five years, and 6d. for each sheep and 3s. for each head of cattle during the remainder of the term; and for the unleased portion of the block 2d. for each sheep or 1s. for each head of cattle; but in no case is the annual rent for the whole block to be less than 2s. 6d. per square mile. No lands in the Mallee country can be alienated in fee-simple. Mallee blocks.

794. The "Mallee border" is to be subdivided into "Mallee allotments," varying in size, but not in any case exceeding 20,000 acres. These are to be leased on the same terms and conditions as in the case Mallee allotments.

of the leased portions of a Mallee block; but the annual rent is to be fixed by regulations issued by the Governor in Council. No person is permitted to take a lease of more than one Mallee allotment, nor can the holder of a Mallee *block* lease obtain also the lease of a Mallee *allotment*.

Land Act 1884 (48 Vict. No. 812).

795. A measure entitled "The Land Act 1884," replacing the Land Act 1869 and subsequent Land Acts, except the Mallee Pastoral Leases Act 1883, just referred to, came into operation on the 29th December, 1884. Its main features are to restrict the further alienation of the public estate by limiting the extent which may be sold by auction, and by substituting for the previously existing method of selecting agricultural land a system of leasing such lands in certain defined areas, at the same time conserving to the lessee the privilege of acquiring from his leasehold the fee-simple of 320 acres under deferred payments. The Act classifies the whole of the unalienated Crown lands—exclusive of the "Mallee country," dealt with under the Mallee Pastoral Leases Act 1883 (47 Vict. No. 766)—as follows:—Pastoral lands, grazing and agricultural lands, auriferous lands, lands which may be sold by auction, swamp lands, State forest reserves, timber reserves, and water reserves. The area of land comprised within each of the above classes respectively is delineated by projections bearing a distinguishing colour or shading on maps of the several counties in which such land is situated. These maps are deposited with the Clerk of Parliaments. The Governor in Council may, however, by proclamation increase or diminish the area comprised in any of the above-mentioned classes, except those relating to lands which may be sold by auction.

Pastoral occupation

796. Under the Land Act 1884, the pastoral lands are to be leased in "pastoral allotments," capable of carrying from 1,000 to 4,000 sheep, or from 150 to 500 head of cattle, for any term not exceeding 14 years,* at the end of which the land, together with all improvements thereon—taken at a valuation as below mentioned—reverts to the Crown, the right to the lease to be granted to the first person who applies for the land after it has been first publicly notified as available, but if there should be two or more applicants, the lease is to be offered at auction. The annual rent payable for pastoral allotments is to be computed according to the grazing capability of the land, at the rate of 1s. per head of sheep and 5s. per head of cattle, upon a basis of not more than 10 acres to a sheep, and the equivalent number of acres for cattle. The principal conditions of the lease are that all "vermin" (rabbits, native dogs, &c.) upon the land shall be destroyed within the first three years, and that

* No lease is to be granted for a longer term than 14 years from the commencement of the Act.

all buildings and improvements shall be kept in good condition and repair. Upon the expiration of the lease, the lessee is to be paid by any in-coming tenant the value of all improvements effected and calculated to increase the carrying capability of the land, at a price not exceeding the sum expended thereon, but in no case to exceed 2s. 6d. per acre. Alienation of pastoral lands is not permitted, except in the case of a lessee of a pastoral allotment, who has the right to purchase, at any time during the currency of his lease, 320 acres as a homestead.

Agricultural and grazing lands.

797. The agricultural and grazing lands are also to be leased in "grazing areas," varying in size, but not exceeding 1,000 acres, for any term not exceeding 14 years,* at the end of which term the land, together with all improvements—to be allowed for at a valuation limited to 10s. per acre—reverts to the Crown. The annual rent of a grazing area is to be appraised by valuers, but is in no case to be less than 2d. or more than 4d. per acre, any improvements that may happen to be on the land at the commencement of the lease to be charged for in addition at the rate of 5 per cent. per annum on the capital value thereof. The only important conditions imposed on the lessee of a grazing area are that he shall, within the first three years, fence the land and destroy all "vermin" thereon. Any person over the age of 18 years is entitled to take up a grazing area; selectors under former Acts, however, being limited to an area, which, together with the land previously selected, must not exceed 1,000 acres. Residence is not required of the holder of a grazing lease, unless he should select portion of his holding under the terms and conditions specified in the next paragraph.

Selection of agricultural allotments.

798. The lessee of a grazing area is at liberty, after the issue of his lease, to select out of the area leased a block or "agricultural allotment" not exceeding 320 acres in extent; but should he have selected under a previous Act or Acts, he is only entitled to increase his selection to such an extent as not to exceed 320 acres in all. A licence is then issued to occupy the agricultural allotment (which is thereafter no longer considered portion of the grazing area), under the same terms and conditions as are allowed to selectors under the Land Acts of 1869 and 1878, as detailed in previous paragraphs †; but persons desirous of selecting an agricultural allotment cannot do so without first taking up a grazing area. Provision is also made for

Non-residence selections.

* See footnote on last page.

† See paragraphs 789 and 790 *ante*.

grazing area lessees to take up agricultural allotments as non-residence licensees under similar conditions as under the Land Act 1878.* The area for which licences may be issued during any year for non-resident selections is limited to 50,000 acres. Other important features of the Act are that every selector—subject to certain conditions and restrictions—is entitled to a Crown grant of portion of his allotment not exceeding 20 acres, if planted as a vineyard or an orchard, upon payment of the balance of the purchase-money due in respect of such portion†; that the licensee of an agricultural allotment may, after the expiration of two years, obtain an advance of money (by giving a "licence lien") secured up to one-half of the improvements effected†; that married women are permitted to take up land as pastoral or grazing lessees, but are not allowed to select an agricultural allotment out of the grazing area leased to them; and that facilities are given to allow of a non-resident selector becoming a resident selector, and *vice versâ*.†

Auriferous lands.

799. Auriferous lands, not required for mining purposes, and not situated within a city, town, or borough, may be occupied under annual licence for purposes of residence or cultivation in areas not exceeding 20 acres; and, for purely pastoral purposes, under licences renewable annually for periods not exceeding 5 years, in blocks not exceeding 1,000 acres. No auriferous land is permitted to be alienated in fee-simple.

Swamp lands.

800. Swamp lands are to be first drained, and may then be leased in areas not exceeding 160 acres for a term of 21 years.

Systems of land selection in Australasian colonies.

801. The laws and regulations under which land for agricultural purposes passes from the Crown into the hands of private individuals differ in the various Australasian colonies.‡ In almost all, however, provision is made for any person, not under 18 years of age, or a married woman,§ desirous of settling on the land to select a certain limited area, and to pay the purchase-money by instalments, the compliance with certain conditions of residence and improvement being also required before the selector becomes entitled to a Crown grant. The principal features of this portion of each system, corrected to date, is detailed under nine heads in the following table :—

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* See paragraph 790 *ante*.

† These privileges, although not previously enacted, are also to be allowed to selectors under previous Acts.

‡ A complete account of the land system of each colony was published in an Appendix to the *Victorian Year-Book* 1884–5.

§ In Tasmania and in Victoria married women may select land.

Conditions of Land Selection in Australasian Colonies, 1886–7.

Conditions of Selections.	Victoria.*	New South Wales.†	Queenslaud.		South Australia.§	Western Australia.‖	Tasmania.¶	New Zealand.**
			Homesteads.	Other Selections.‡				
1. Maximum area allowed .. Acres	320	640 and 2,560	160	320 to 1,280	1,000	1,000	320	320
2. Price per acre	£1	£1	2s. 6d.	£1 upwards	£1	10s.	£1	£1 to £2
3. Time over which purchase may extend .. .. Years	20	33	5	‡	20	20	14	10
4. Minimum time in which fee-simple may be acquired .. Years	6	5	5	10	10	5	any time	6
5. Annual payment per acre ..	1s.	1s.	6d.	‡	1s.	6d.	2s.	2s. to 4s.
6. Value of necessary improvements per acre	20s.	Fencing only	7s. 6d. to 10s.	Fencing or 7s. 6d. to 10s.	10s.	10s. and Fencing	..	20s.
7. Time allowed for making improvements .. .. Years	6	2	5	5	4	20	..	6
8. Acres in every 100 to be cultivated	10	..	..	..	20 ††	..	..	20
9. Period of residence necessary ‡‡ Years	5	5	5	‡	20	5	14	6

* In Victoria the land is taken up, in the first instance, in blocks not exceeding 1,000 acres, under lease for a term not exceeding 14 years, at a rental of from 2d. to 4d. per acre, out of which leasehold a "selection," not exceeding 320 acres, may be taken up under the conditions here named. See also paragraphs 797 and 798 *ante*.

† In New South Wales, a territorial division of the colony is made into three zones, viz., the eastern, the central, and the western division. The maximum area allowed in the eastern division is 640, and in the central 2,560 acres. In addition to the selection, a leasehold of an additional area, limited to three times that of the selection (the area of the selection and lease together not to exceed 1,280 acres in the eastern, or 2,560 acres in the central, division), may be granted to the selector at an annual rental of not less than 2d. per acre, with the right of conditional purchase after 5 years' tenure. The price per acre does not include interest, for which 4 per cent. per annum is charged and collected out of the annual instalments paid. The first payment is 2s. per acre in advance, with an interval of 3 years before the next instalment of 1s. is payable.

‡ In Queensland, within the limits named, the maximum area allowed to be selected may be varied in any district by the Government. In that colony the system of leasing seems to have supplanted that of alienating the fee-simple of the land by means of deferred payments. The selector first occupies the land under licence for 5 years, at an annual rental of not less than 3d. per acre, and may at the end of that time, if the condition as to fencing (or improvements of equal value) has been complied with, obtain a lease for 50 years; the annual rental for the first 10 years being not less than 3d. per acre, but for every succeeding period of 5 years to be fixed by the Land Board. The selector has the right to purchase at not less than 20s. per acre, within 12 years from the date of the granting of the lease, during the currency of which residence is compulsory.

§ In South Australia 10 per cent. of the purchase-money is paid as deposit, 10 per cent. at the beginning of the fourth year, and 5 per cent. at the beginning of the fifth and each subsequent year.

‖ In Western Australia, the particulars given relate to the South Western (or Home) District only. In the five other land divisions of the colony, land may be taken up by non-resident selectors in areas of from 100 to 5,000 acres at 10s. per acre payable in 10 yearly instalments, the conditions required being fencing and the expenditure of an amount equal to purchase money on improvements. Besides selections under the system of deferred payments, there is also a method of selecting land by *direct payment* under certain conditions, the extent of a selection being limited to 1,000 acres in a declared area, and to 5,000 acres outside such area, at a price of not less than 10s. per acre; the conditions being fencing within 3 years. and an expenditure of 5s. per acre on improvements within 7 years from date of survey. Moreover, pastoral lessees have the privilege of selecting a certain proportion of their leasehold adjoining the Homestead prior to the 1st March, 1892, under similar conditions, except in regard to residence, as in the case of other selectors in the respective districts; thus, in the south-western and eastern divisions, the proportion allowed to be selected is 5 per cent. with a maximum of 3,000 acres, and in the other divisions 1 per cent. with a maximum of 5,000 acres; provided also, in the latter case, the runs are stocked with 10 sheep or 1 head of large stock to every 1,000 acres leased.

¶ In Tasmania, 33⅓ per cent. is added to the price, as interest, for the period of fourteen years. It is stated that a new Land Bill, which will (if passed) materially change the land system of this colony, is now (August 1887) under consideration.

** In New Zealand, the price per acre varies with the quality of the land. There is besides a system of "perpetual leasing" in that colony, under which as much as 640 acres may be leased at an annual rental equal to 5 per cent. of the value of the land. The first lease is for 30 years, with the option of renewal for succeeding periods of 21 years, the rent being assessed afresh at each renewal. Between the sixth and eleventh years the lessee may acquire the freehold if the land is not within a proclaimed gold-field. The conditions as regards residence and improvement are the same as under the deferred payment system. The "Homestead system" is also in force throughout the colony to a limit of 30,000 acres in any one year. Under this system no payment is made for the land. After five years' residence and the cultivation of one-third of the selection if open land, and one-fifth if bush land, the selector can claim his Crown grant. No family or household can hold more than 200 acres of first-class land or 300 acres of second-class land under this system.

†† One acre under fruit trees or shrubs, potatoes, onions, &c., counts as 6 acres of ordinary cultivation.

‡‡ In all the colonies, as soon as the purchase-money is paid in full, the residence clause is no longer enforced. In South Australia, Western Australia, and New Zealand in the case of bush land, personal residence is not necessary.

Ambiguity of the term "alienation," as applied to Crown lands.

802. In dealing with the figures relating to the alienation of the public estate, it is customary in Victoria to consider Crown lands as sold or alienated only when the right to the title in fee-simple has been acquired. Consequently a large proportion of the land set down as alienated in any year, having been originally selected with right of purchase under certain conditions, the purchase-money being payable by annual instalments, without interest, may have been virtually parted with many years previously. The land set down as alienated in any year, therefore, consists of the area sold by auction, that granted without purchase, and that selected or conditionally purchased—of which the purchase had been completed during the year. Some of the neighbouring colonies, however, adopt a different principle, for, in their statements of land alienated, that sold conditionally—which, of course, is liable to revert to the Crown should the conditions of sale not be complied with—is included with that of which the fee-simple has been obtained. Both methods are useful in their way, the Victorian plan giving the more accurate account of the condition of the public estate, and the other giving the better indication of the progress of settlement. In the following paragraphs it may perhaps be sometimes necessary to use the term "alienated" in connexion with land which is only conditionally purchased, but when this occurs such explanation will be given as will prevent a mistake.

Crown lands alienated to end of 1886.

803. The total extent of Crown land sold and finally parted with in Victoria up to the end of 1886 was 14,766,771 acres, and the extent granted without purchase was 13,426 acres. The whole area alienated in fee-simple was thus 14,780,197 acres, of which 8,204,083 acres, or considerably more than half, was originally acquired by selection under the system of deferred payments.

Crown lands selected.

804. The selected lands of which the purchase had not been completed up to the end of the year amounted to 11,457,593 acres. Of this extent it is estimated that 3,748,407 acres had been forfeited or abandoned, and had reverted to the Crown. The remainder, representing approximately the whole area in process of alienation under deferred payments, amounted to 7,709,186 acres.

Crown lands unalienated.

805. According to the latest computation, the total area of the colony is 56,245,760 acres; and if from this be deducted the sum of the lands granted, sold, and selected, amounting—less the extent forfeited—to 22,489,383 acres, it will follow that the residue, representing the Crown lands neither alienated nor in process of alienation, amounted at the end of 1886 to 33,756,377 acres.

806. The whole of this residue, however, is not available for settlement, for it embraces lands occupied by roads, the unsold portions of the sites of towns, and beds of rivers and lakes; the State forests; water, timber, and other reserves. Deducting these lands—amounting in the aggregate to 4,915,898 acres, also that portion of the colony known as the Mallee country, containing 11,535,500 acres, leased for pastoral purposes under a special Act, and 1,691,315 acres occupied under lease or licence for various terms of years—from the extent unalienated and unselected, already stated to have been 33,756,377 acres, it will be found that the available area is narrowed to 15,613,664 acres. This will be at once seen by the following table, which shows the position of the public estate at the end of 1886:— Public estate, 1886.

PUBLIC ESTATE OF VICTORIA ON 31ST DECEMBER, 1886.

Condition of Land.	Approximate Number of Acres.
Land alienated in fee-simple	14,780,197
Land in process of alienation under deferred payments ...	7,709,186
Roads in connexion with the above	1,311,200*
Water reserves	155,900
Reserves as endowment for agricultural college ...	122,077†
Timber reserves and State forests	1,210,810
Other reserves	204,540
Unsold land in towns, beds of rivers, &c.	1,911,371
Mallee country‡	11,535,500
Land in occupation under—	
Pastoral leases	1,078,000
Grazing area leases	591,138
Grazing licences for auriferous lands	22,177
Available for settlement at end of 1886	15,613,664§
Total area of Victoria	56,245,760

807. The area of the colony, exclusive of the Mallee country, is 44,710,260 acres, of which, at the end of 1886, 22,489,383 acres, or 50 per cent., were already alienated or in process of alienation; 4,915,898 acres, or 11 per cent., were occupied by reserves, &c.; 1,691,315 acres, or 4 per cent., were occupied under lease‖ for pastoral purposes; and 15,613,664 acres, or 35 per cent., were available for settlement. Crown lands available for settlement.

* Calculated at 5 per cent. of the gross extent sold and selected up to the end of 1886.

† Of this area 107,600 acres were leased for agricultural and grazing purposes, and return an annual revenue of about £5,000.

‡ Occupied for pastoral purposes, under the Mallee Pastoral Leases Act 1883, for terms not exceeding 20 years.

§ A large proportion of this area is temporarily held under grazing licences, renewable annually; only 144,119 acres of it may be sold by auction.

‖ Including a small proportion under licence for periods of five years.

Classification of available land.

808. Following the classification provided for under the existing Land Act, the estimated area of Crown lands, exclusive of the Mallee country, available, under the Land Act 1884, at the end of 1886 may be divided as follows * :—

CLASSIFICATION OF LAND AVAILABLE AT END OF 1886.

	No. of Allotments.	Acres.
Pastoral lands	258 ...	5,690,800 *
Agricultural and grazing lands ...	12,290 ...	8,243,462 *
Auriferous lands	... ...	1,447,973
Swamp lands	... ...	87,310
May be sold by auction	... ...	144,119
Total		15,613,664

Crown lands alienated, 1886.

809. The land alienated from the Crown in fee-simple during 1886 amounted to 354,587 acres, of which 353,467 acres were sold, and 1,120 acres were granted without purchase. The total extent was less by 72,505 acres than that in 1885, and was also much less than the extent alienated in any year since 1879.

Crown lands sold by auction.

810. Of the area sold, 19,281 acres, or 5½ per cent., were disposed of by auction. Nearly the whole of the remainder had been in the first instance selected in previous years under the system of deferred payments. The extent sold by auction in 1886 was less than that in 1885 by 7,620 acres; it was, moreover, absolutely the least in the last seventeen years, during which period the annual average extent so sold was 63,700 acres.

Amount realized on Crown land alienated in 1886.

811. The amount realized for Crown lands finally alienated in 1886 was £445,441, or at the rate of £1 5s. 2d.† per acre. Of this sum, only part was received during the year, nearly all the remainder having been paid in former years as rents and licence fees. The proportion sold by auction realized £100,997, or an average of £5 4s. 9d. per acre; and the proportion sold otherwise than at auction realized £344,444, or an average of £1 0s. 7d. per acre.

Deferred payments on lands sold by auction.

812. The principle of deferred payments in connexion with sales of Crown lands by auction was introduced for the first time in the Land Act 1884,‡ it being necessary to pay one-fourth of the price bid at the time of sale, the remaining three-fourths being, at the option of the purchaser, spread over three years, payable quarterly, in instalments

* Since the beginning of the year, the lands classed as Pastoral have been reduced, and those classed as Agricultural and Grazing have been increased, by 309,300 acres; it is, moreover, probable that 498,600 acres in addition will be similarly transferred before the end of 1887. For particulars of land in occupation at end of 1886 see paragraphs 821 *post*.

† In view of the fact that payment for the greater portion extended over a term of years without interest, the actual average price was much less than this. See paragraph 813 *post*.

‡ 48 Vict., No. 812, Section 71.

of equal amounts, bearing interest at the rate of 6 per cent. per annum. In 1886, the majority of purchasers did not avail themselves of this concession, as only £57,555, out of a total of £216,350 during the last two years was left unpaid, the amount received being £158,795, as well as £1,850 for interest.

Amount realized, 1836 to 1886.

813. From the period of the first settlement of the colony to the end of 1886, the amount nominally realized by the sale of Crown lands was £22,895,324, or at the rate of £1 11s. 1d. per acre. It must, however, be remembered that payment of a considerable portion of this amount extended over a series of years without interest, allowance for which, at the current rate would, it is evident, materially reduce the amount the State actually obtained for the land. It may be calculated that, with interest at 5 per cent., if the payment of the £1 per acre by equal annual instalments be extended over 10 years without interest, the amount of purchase-money is really equivalent to only 15s. 6d. per acre, and if it be extended over 20 years, it is reduced to 12s. 6d. per acre.

Selection of public lands, 1886.

814. During the year 1886, 1,190 applications were granted for the selection of 188,196 acres under the deferred payment system.* Of this, 185,041 acres, or over 98 per cent., were taken up in blocks limited to 320 acres, nominally for agricultural purposes; 3,008 acres were taken up in allotments limited to 20 acres, for purposes of residence or cultivation, on or near gold-fields; and 147 acres in parcels, averaging 3 acres each, for purposes of residence. All these transactions were under the Land Acts 1869 and 1878, the applications having been duly lodged before the end of 1884, when those Acts were repealed. The following is a summary of the selectors, the number of acres selected, and the amount of purchase-money payable under each authority during the year 1886:—

SELECTORS AND EXTENT SELECTED, 1886.

Selections of Crown Lands, 1886, for purpose of—	Legalization.	Number of Selectors.	Area Selected.	Purchase-money payable. (Approximate.)
			Acres.	£
Agriculture, with residence	Act No. 360, Sec. 19	943	178,465	178,465
,, without residence	Act No. 634, Sec. 11	25	6,576	13,352
Residence or cultivation, near gold-fields	Act No. 360, Sec. 49	173	3,008	3,760
Residence	Act No. 634, Sec. 10	49	147	441
Total	... ...	1,190	188,196	196,018

* See paragraphs 789 and 790 *ante*.

Number of selectors, 1870 to 1886.

815. The number of selectors approximates closely to the number of approved applications. The following are the numbers in each of the years named in the last table, those under the different sections of the Land Act 1869 and the Amending Land Act 1878 being distinguished:—

APPROVED APPLICATIONS (SELECTORS) 1870 TO 1886.

Year.	Number of Selectors of Land.				Total.
	For Purposes of Cultivation.		For Residence and Cultivation near Gold-fields. (Section 49, Act No. 360.)	For Residence. (Section 10, Act No. 634.)	
	With Residence. (Section 19, Act No. 360.)	Without Residence. (Section 11, Act No. 634.)			
1870	3,017	...	131	...	3,148
1871	4,575	...	673	...	5,248
1872	7,771	...	1,408	...	9,179
1873	6,689	...	1,455	...	8,144
1874	9,578	...	1,493	...	11,071
1875	6,320	...	771	...	7,091
1876	5,785	...	697	...	6,482
1877	6,240	...	777	...	7,017
1878	7,524	...	1,534	...	9,058
1879	5,726	75	887	...	6,688
1880	4,036	67	1,054	56	5,213
1881	3,110	42	1,151	106	4,409
1882	4,383	51	837	47	5,318
1883	4,453	58	1,070	22	5,603
1884	3,918	71	1,002	11	5,002
1885	3,930	68	714	83	4,795*
1886	943	25	173	49	1,190*
Total ...	87,998	457	15,827	374	104,656

Progress of settlement on public lands, 1870 to 1886.

816. The extent of Crown lands absolutely or conditionally alienated during each year since the passing of the Land Act 1869 is shown in the following table, which distinguishes the extent sold by auction and that granted without purchase from that conditionally alienated or selected:—

* The applications approved in 1885 and 1886 were lodged in 1884, before the expiration of the Land Act 1869.

Crown Lands Absolutely and Conditionally Alienated, 1870 to 1886.

Year.	Area, Granted, Sold, and Selected.			Total.
	Granted without Purchase.	Sold by Auction.	Conditionally alienated under Land Acts 1869 and 1878.*	
	Acres.	Acres.	Acres.	Acres.
1870	21	148,685	322,592	471,298
1871	118	118,440	487,436	605,994
1872	320	146,611	797,176	944,107
1873	1,575	19,929	1,063,066	1,084,570
1874	44	49,655	1,831,698	1,881,397
1875	...	83,395	1,183,520	1,266,915
1876	546	150,628	1,040,356	1,191,530
1877	260	76,006	1,126,498	1,202,764
1878	57	47,376	1,415,129	1,462,562
1879	503	56,430	1,032,214	1,089,147
1880	461	27,272	752,639	780,372
1881	3,237	24,753	588,922	616,912
1882	666	31,386	851,402	883,454
1883	159	20,085	843,971	864,215
1884	74	35,446	734,092	769,612
1885	3,099	26,900	723,523	753,522
1886	1,120	19,281	188,196	208,597
Total	12,260	1,082,278	14,982,430*	16,076,968

817. Dividing the total number of acres selected by the total number of selectors, as shown in the last two tables, it is found that throughout the whole period of seventeen years the average number of acres taken up by each selector has been 143. Average size of selections.

818. Of the land which had been selected in former years, 81,993 acres during 1886 were abandoned or forfeited to the Crown in consequence of non-fulfilment of conditions, resulting in a gain to the Treasury of £3,861. Selected land forfeited, 1886.

819. The present Land Act prescribes that any one wishing to select for agricultural purposes must first acquire the lease of a grazing area.† The number of applications for such leases received in 1886 was 14,544; but the number approved during that year was only 1,493, the extent for which approval was granted being 591,138 acres. Of the lessees of grazing areas only 38 made application during the year for the issue of licences of "agricultural allotments" (or selections), representing a total area of 7,917 acres. None of these applications, however, were dealt with during the year. Leases of grazing areas and selections, 1886.

* A large proportion of the land referred to in this column may revert, and, as a matter of fact, has reverted, to the Crown in consequence of non-fulfilment of conditions, &c., and may subsequently be included in re-adjustments of selections, re-licensed, sold by auction, or retained by the Crown. "Gold-fields" selections are included in this column. See paragraph 804 *ante*.

† See paragraphs 797, 798, and 808 *ante*.

Licence liens 1886.

820. Licensees of agricultural allotments (or selectors) under the Land Acts 1869 and 1884 are empowered to grant licence liens for advances of money up to half the value of improvements effected. The number of such licence liens registered in 1886 was 326, embracing an area of 79,099 acres, the amount secured on which was £38,924.

Pastoral occupation, 1886.

821. Under the present Land Act it was intended that the purely pastoral lands of the colony, the whole of which have been marked off as "pastoral allotments," should be occupied under lease for periods not exceeding fourteen years from the commencement of the Act. But it is provided, in case all the allotments should not be applied for, that temporary grazing licences, renewable annually, may be granted for the occupation of such lands and of unoccupied agricultural lands, so long as they may not be required for leasing under the principal sections of the Act. Moreover, auriferous lands, in blocks not exceeding 1,000 acres, may be licensed for grazing purposes for periods of five years. The following table shows the area of Crown lands held under lease or licence for pastoral or grazing purposes at the end of 1886, also the number of leases and licences, and the annual rental payable:—

PASTORAL OCCUPATION, 1886.

(Under Land Act 1884.)

Description of Tenure.	Number of Licences or Leases.	Extent of Crown Lands.	Annual Rental.
		Acres.	£
Pastoral leases (sec. 32)... ...	66	1,078,000	4,194
Grazing licences (secs. 3 and 119)	1,627	6,967,383	30,231
„ „ (auriferous lands, secs. 65 and 67)	119	22,177	323
Total	1,812	8,067,560	34,748

Average area of runs and grazing rights.

822. By these figures it may be ascertained that the average extent of land embraced in a pastoral lease was 16,000 acres, and in a grazing licence 4,280 acres. These areas are exclusive of those of any purchased land attached thereto.

Rent of runs and grazing rights.

823. According to the table, the average rent per acre of pastoral allotments was ·93d., and of land held under grazing licence—generally of an inferior character to that embraced in pastoral allotments—1·04d.

Assessment of pastoral lands.

824. The rental of pastoral lands available at the end of 1885, viz., 7,078,100 acres, was assessed in 1886 at £24,717 per annum. Since 1885, however, the area has been reduced by 309,300 acres, and it is

contemplated to still further reduce it by 498,600 acres.* These deductions will naturally considerably reduce the assessment referred to.

825. The number of leases and of lessees of Mallee blocks and allotments under the Mallee Pastoral Leases Act 1883,† the approximate area of such divisions, and the annual rental payable therefor, are shown in the following table :— Mallee pastoral leases.

MALLEE PASTORAL LEASES ON 31ST DECEMBER, 1886.

Description of Leaseholds.	Number of Leases.	Number of Lessees.	Area.	Annual Rental.
			Acres.	£
Mallee blocks	64	46	8,180,000	1,680
„ allotments	577	562	2,101,100	2,830
Total	641	608	10,281,100	4,510

826. At the end of 1886, the following areas were still available for occupation in the Mallee country:—Mallee blocks, 1,123,200 acres; Mallee allotments, 128,193 acres. Mallee areas still unoccupied, 1886.

827. In 1883, prior to the passing of the Mallee Pastoral Leases Act, the Mallee country was held under pastoral licences or grazing rights. The number of such licences and rights was 147, held by 58 individual occupiers; the area over which the right of occupation was given was 7,727,360 acres, and the annual rental payable was £8,076. From a comparison of these figures with those in the above table, it appears that since 1883, whilst the occupiers of the Mallee country have increased elevenfold, and the extent occupied by more than one-third, the annual rental has fallen off by £3,500, or by 44 per cent. As a set-off against this reduced rental, however, it should be pointed out that the present lessees have to comply with certain conditions‡ to which the licensees under the former Act were not subject. Past and present occupation of Mallee country.

828. According to the figures in the last table, the average rental per 100 acres payable for the Mallee country is 10½d., or 5d. for the Mallee blocks and 2s. 8d. for the Mallee allotments. In 1883, prior to the passing of the present Act, the average rental in the Mallee conntry was 2s. 1d. per 100 acres. Average rental of Mallee country.

829. The revenue from the sale and occupation of Crown lands may be divided into—(1) receipts from the alienation of land in fee-simple, including the price realized from land sales and from rents which count towards the purchase-money ; (2) receipts on account of temporary Land revenue.

* See footnote to paragraph 808 *ante*.

† See paragraphs 792 to 794 *ante*.

‡ See paragraph 793 *ante*.

occupation, which include payments for pastoral leases and grazing licences, rents for business, factory, and hotel sites, &c., and rents of land which do not count towards the purchase-money; (3) penalties, interest, and fees for grants, leases, licences, &c. In 1886, as compared with 1885, there was a slight decrease in the receipts from both alienation and temporary occupation. The net decrease amounted to nearly £35,000, as will be seen by the following figures :—

LAND REVENUE, 1885 AND 1886.

Heads of Land Revenue.	Amounts Received.		Increase (+), or Decrease (−).
	1885.	1886.	
	£	£	£
Alienation in fee-simple and progressive ...	526,011	488,662	−37,349
Temporary occupation	78,338	67,886	−10,452
Penalties, fees, interest, &c.	26,100	39,113	+13,013
Total	630,449	595,661	−34,788

Agricultural statistics.

830. The agricultural statistics of Victoria are collected by the municipal bodies, which, under the Local Government Act 1874 (38 Vict. No. 506), and the Local Government Act Amendment Act 1883 (47 Vict. No. 786), are required each year to furnish to the Government Statist, on or before the 1st March, such agricultural and other statistics relating to their districts on such forms and in such manner as the Governor in Council may direct. All persons are required to give correct information to the best of their knowledge and belief; and, should they fail to do so, they render themselves liable to a penalty not exceeding £10. Collectors divulging or making extracts from the information they receive, except under the special direction or authority of the Government Statist, also render themselves liable to a penalty of £10.

Bonuses for collecting statistics.

831. In assigning the duty of collecting statistics to the local bodies, the law did not provide that they should receive any payment therefor; and thus, although under that provision of the Act whereby the Governor in Council had power to prescribe the manner as well as the form of the statistics, elaborate instructions for the guidance of the persons employed had each year been supplied them, the Government had practically but little control over the work, and hence many of the returns were not sent in until long after the appointed time, and some were generally furnished in anything but a satisfactory condition. This being the case, it was decided by the Government—for the first time in 1883–4—to offer bonuses, ranging, according to the nature of the country,

from £6 to £3 per 100 schedules collected, to such municipalities as should furnish authentic and complete returns punctually at the appointed time —the amount to be reduced one-half if the returns were delayed for five days, three-quarters if they were delayed for ten days, and forfeited altogether if ten days should be exceeded. These bonuses have now been given for four years with excellent effect, as the measures taken have resulted in the statistics being sent in at such a date that it has become possible to publish nearly complete returns about the 12th March, or fully two months earlier than such a result had been achieved in previous years.

Agricultural statistics, 1886-7.

832. The agricultural statistics to which reference will now be made are those for the year ended 1st March, 1887.* Tables embodying the general results of these statistics will be found in the *Government Gazette* of the 7th April last, and these, with additional tables, form portion of the *Statistical Register of Victoria.*

Number of cultivators.

833. The total number of farm holdings visited was 38,216, of which 36,953 were in shires, 1,139 in cities, towns, or boroughs, and 124 in places outside of local jurisdiction. In the previous year the number of farms visited was 38,384, the falling-off being thus 168. The slight falling-off shown is accounted for by the fact that on the present occasion the collectors were, for the first time, told not to visit holdings on which there was no other cultivation than artificial grass.

Land under tillage.

834. The extent of land returned as under cultivation amounted to 2,417,582 acres, as against 2,405,157 acres in 1885–6. The increase shown by the figures was, therefore, 12,425 acres.

Area cultivated per head of population.

835. The average area in cultivation to each person in the colony was about $2\frac{1}{2}$ acres in the year under review as against 2 acres five years previously, and $1\frac{1}{2}$ acre 10 years previously. The exact amounts at the three periods were as follow :—

AVERAGE AREA CULTIVATED TO EACH PERSON IN THE COLONY.

	Acres.
1876–7	1·54
1881–2	2·06
1886–7	2·41

Area cultivated per head in Australasian colonies.

836. The following table shows the area per head cultivated in each Australasian colony during the nine seasons ended with that of 1885–6, also the mean of those seasons, the colonies being placed in order according to the average extent of land per head that each cultivates :—

* A summary of the agricultural statistics of each year since the first settlement of the colony will be found at the commencement of this work (second folding sheet).

CULTIVATION PER HEAD IN AUSTRALASIAN COLONIES, 1877 TO 1885.*

Colony.	Acres under Tillage per Head of Population.									
	1877–8.	1878–9.	1879–80.	1880–81.	1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	Mean.
1. S. Australia ...	7·72	8·09	8·75	9·62	8·91	8·08	9·05	8·91	†	8·64
2. Tasmania ...	3·26	3·23	3·26	3·25	3·15	3·08	3·12	3·26	3·12	3·19
3. New Zealand	2·30	2·62	2·67	2·12	2·63	2·68	2·61	2·39	2·20	2·47
4. Victoria ...	1·74	1·95	2·01	2·32	2·06	2·25	2·38	2·42	2·42	2·17
5. W. Australia	1·82	1·81	2·28	2·20	1·78	1·84	1·94	2·42	2·19	2·03
6. N. S. Wales ...	·83	·88	·90	·96	·83	·90	·91	·92	·90	·89
7. Queensland ...	·52	·56	·49	·53	·56	·64	·58	·64	·66	·57

Results in different colonies compared.

837. It will be observed that South Australia cultivates much more, and New South Wales and Queensland cultivate much less, per head than any of the other colonies; also that Victoria occupies a middle place, being below South Australia, Tasmania, and New Zealand, but above the other three colonies, viz., Western Australia, New South Wales, and Queensland.

Land under principal crops.

838. The principal crops grown in Victoria are wheat, oats, barley, potatoes, hay, and green forage. In 1886–7, the area under wheat exceeded by 33,000 acres that in the previous year, but was not so large by 44,000 acres as in 1884–5; the area under potatoes and hay was larger than in any previous year; the area under oats was smaller than in any one of the previous three years, and the area under barley than in any one of the previous seven years, it being only half that in 1885–6; the area under green forage was apparently exceeded in nine other years, but this is accounted for by the fact already mentioned, viz., that the collectors, in the year under review, were for the first time told not to visit holdings on which there was no other cultivated land than that laid down under permanent artificial grass, which crop is included under the head of green forage. The following table shows the extent of land under each of these crops in the last two seasons:—

LAND UNDER PRINCIPAL CROPS, 1886 AND 1887.

Year ended March.	Wheat.	Oats.	Barley.	Potatoes.	Hay.	Green Forage.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1886 ...	1,020,082	215,994	74,112	42,602	421,036	334,399
1887 ...	1,052,685	185,765	37,031	49,974	445,150	284,186
Increase ...	32,603	...	...	7,372	24,114	...
Decrease...	...	30,229	37,081	...	...	50,213

* For the population and number of acres under tillage in each Australasian colony during the fourteen years ended with 1886, see Summary of Australasian Statistics (third folding sheet *ante;* also Appendix A *post.*

† The colony of South Australia did not collect agricultural statistics in 1885–6; the mean is, therefore, for eight years.

839. The gross yield of wheat exceeded that in 1885–6 by nearly 3,000,000 bushels, or something less than a third, and was only exceeded in one previous year, viz., 1883–4; the yield of oats was less than in any one of the previous four years, and the yield of barley than in any one of the previous seven years except 1882–3; the yield of potatoes and that of hay were greater than in any previous year. The following is a statement of the gross produce of each of the principal crops in 1885–6 and 1886–7:— Produce of principal crops.

GROSS PRODUCE OF PRINCIPAL CROPS, 1886 AND 1887.

Year ended March.	Wheat.	Oats.	Barley.	Potatoes.	Hay.
	Bushels.	Bushels.	Bushels.	Tons.	Tons.
1886 ...	9,170,538	4,692,303	1,302,854	163,202	442,118
1887 ...	12,100,036	4,256,079	827,852	170,661	483,049
Increase ...	2,929,498	...	...	7,459	40,931
Decrease ...	...	436,224	475,002	...	...

840. The following table shows, for each of the last six years, the produce of wheat in twelve counties which, for the most part, lie between the 36th and 37th parallels of latitude, and which are above all others the wheat-producing counties of Victoria :— Wheat-producing counties.

WHEAT RAISED IN TWELVE COUNTIES, 1882 TO 1887.

Counties.	Number of Bushels Produced.					
	1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	1886–7.
Bendigo ...	517,342	622,451	1,217,037	656,454	732,245	662,769
Bogong ...	294,470	434,907	392,357	334,198	324,526	387,133
Borung ...	1,503,604	1,291,678	3,334,101	2,230,323	921,131	2,343,612
Dalhousie ...	206,000	197,968	160,381	35,746	41,687	46,328
Delatite ...	236,936	277,824	224,562	208,371	137,495	167,502
Gladstone ...	385,181	556,931	1,074,658	752,311	505,682	696,479
Gunbower ..	230,952	215,129	852,930	272,280	588,073	524,323
Kara Kara	678,846	576,667	1,599,720	1,026,417	520,249	608,558
Lowan ...	540,539	613,278	1,189,488	1,388,431	1,142,784	1,621,371
Moira ...	1,865,846	1,805,153	2,797,046	2,063,628	2,661,218	3,063,416
Rodney ...	1,007,787	852,358	1,170,861	692,133	945,734	934,475
Talbot ...	377,893	368,480	333,154	172,514	124,114	153,096
Total	7,845,396	7,812,824	14,346,295	9,832,806	8,644,938	11,209,062

841. In the last three seasons about sixteen-seventeenths of the wheat raised in Victoria was grown in these twelve counties, as against a proportion of about twelve-thirteenths in 1883–4, and about eight-ninths in the previous two years. In all the counties named except Yield of wheat in twelve counties.

Bendigo, Gunbower, and Rodney the gross yield was greater in 1886–7 than in the previous year. The increase was especially great in Borung, the crop being considerably more than twice as large as that of 1885–6.

Yield of wheat in each county.

842. The average produce of wheat per acre in the various counties, and in the whole colony in 1886–7, is compared in the following table with that in each of the five previous years. The counties are arranged according to the average yield in the past season, and the twelve counties just referred to are marked with asterisks :—

AVERAGE PRODUCE OF WHEAT IN EACH COUNTY, 1882 TO 1887.

County.	Bushels of Wheat per Acre.					
	1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	1886–7.
Dargo ...	18·59	20·35	16·16	17·03	15·82	35·88
Tanjil ...	20·50	22·41	13·89	18·96	21·81	29·77
Villiers ...	26·15	27·30	22·45	23·71	19·83	29·05
Tambo ...	24·51	21·39	29·60	22·14	10·91	27·65
Polwarth ...	18·02	23·30	21·53	25·45	18·56	26·60
Heytesbury ...	21·97	24·80	19·35	20·97	18·99	25·27
Wonnangatta ...	18·80	19·99	11·98	11·23	14·25	24·03
Benambra ...	20·92	22·11	20·21	20·38	15·14	23·65
Buln Buln ...	22·34	25·33	20·78	20·27	19·67	22·90
Normanby ...	16·81	18·09	14·90	16·07	13·40	21·45
Dundas ...	20·01	19·20	16·88	13·78	13·04	20·55
*Dalhousie ...	21·58	23·22	17·01	15·58	15·35	20·36
Grant ...	22·56	24·55	20·29	17·92	20·40	20·10
Hampden ...	21·02	21·37	16·99	13·91	13·25	19·07
*Talbot ...	16·53	18·35	16·81	15·45	14·91	18·21
Evelyn ...	20·16	19·96	17·27	15·80	17·81	17·10
Ripon ...	15·67	17·53	15·80	14·89	14·83	16·63
Grenville ...	16·71	19·61	16·36	13·43	17·38	15·93
*Bogong ...	13·49	16·47	13·72	13·82	12·55	15·82
Bourke ...	20·65	20·86	18·35	17·48	18·31	15·82
Anglesey ...	17·99	19·42	12·55	12·96	13·55	15·61
*Moira ...	12·91	12·17	15·57	10·53	13·09	14·79
Mornington ...	21·30	23·61	19·48	25·02	15·00	14·14
*Delatite ...	13·90	16·10	11·74	14·33	12·32	13·87
*Rodney ...	12·68	10·51	13·09	8·75	12·88	13·49
Follett ...	12·61	16·86	16·36	14·64	11·63	13·26
*Bendigo ...	6·48	7·81	14·94	9·37	11·26	11·97
*Lowan ...	10·65	9·00	11·76	11·09	8·63	11·09
*Gladstone ...	5·56	8·29	14·47	9·97	7·80	10·82
*Borung ...	7·00	5·66	13·75	8·75	4·22	9·60
*Gunbower ...	4·16	3·24	12·74	4·19	9·29	9·60
Karkarooc ...	...	...	15·44	6·29	2·99	7·94
Tatchera ...	2·37	3·08	12·28	4·01	5·06	7·86
*Kara Kara ...	7·39	6·24	14·31	8·92	5·56	6·26
Croajingolong ...	21·51	15·15	16·79	19·77	10·98	5·95
Total ...	9·40	9·03	14·10	9·52	8·99	11·49

* The principal wheat-producing counties are marked with asterisks.

843. It will be noticed that, taking the colony as a whole, the acreable yield of wheat rose from 9 bushels in 1885–6 to 11½ bushels in 1886–7, and was higher than in any of the other years named except 1883–4. In Grant, Evelyn, Grenville, Mornington, and Croajingolong, the produce per acre was lower in the past than in the previous season, but in the other 30 counties it was higher. Acreable yield of wheat, 1886 and 1887.

844. It should be mentioned that in several of the counties in which the average yield of wheat is high a very small quantity is grown, which is probably raised on a patch of choice land, and does not afford an indication of the general productiveness of the county. Thus, in 1886–7 only 102 acres were placed under wheat in Tambo, 113 in Wonnangatta, 198 in Mornington, 219 in Dargo, 300 in Polwarth, and 718 in Evelyn. In all these counties the yield per acre was much above the average of the colony. Small gross yield of wheat in some counties.

845. The average produce per acre of oats, barley, potatoes, and hay in each county during the last two seasons is given in the following table :— Yield of other principal crops in each county.

AVERAGE PRODUCE OF OATS, BARLEY, POTATOES, AND HAY IN EACH COUNTY, 1885–6 AND 1886–7.

Counties.	Average Produce to the Acre of—							
	Oats. (Bushels.)		Barley. (Bushels.)		Potatoes. (Tons.)		Hay. (Tons.)	
	1885–6.	1886–7.	1885–6.	1886–7.	1885–6.	1886–7.	1885–6.	1886–7.
Anglesey ...	25·76	26·32	19·46	16·38	3·89	2·90	1·42	1·46
Benambra ...	18·97	32·60	18·47	25·66	3·43	3·72	1·09	1·72
Bendigo ...	17·51	16·28	14·21	17·39	3·52	1·88	·94	·79
Bogong ...	24·35	27·90	16·09	23·74	3·30	2·91	1·10	1·25
Borung ...	13·34	14·99	7·95	12·93	1·59	1·41	·39	·64
Bourke ...	28·12	29·75	28·20	26·08	4·43	3·69	1·76	1·08
Buln Buln ...	25·34	25·44	28·38	25·10	5·58	4·88	1·94	2·03
Croajingolong	13·38	19·72	13·75	...	3·75	2·93	1·15	1·61
Dalhousie ...	24·88	27·34	23·24	19·49	3·39	2·76	1·44	1·58
Dargo ...	18·60	23·57	18·42	24·27	3·71	5·24	1·15	1·93
Delatite ...	22·16	24·26	21·66	22·24	2·78	2·89	1·27	1·32
Dundas ...	19·72	26·28	22·10	31·18	1·67	1·74	1·38	1·98
Evelyn ...	21·28	28·69	26·79	16·90	3·41	3·00	1·57	1·52
Follett ...	17·44	22·96	20·93	20·98	1·98	2·02	·90	1·44
Gladstone ...	12·85	15·59	12·51	15·10	3·80	2·20	·66	·80
Grant ...	29·36	29·99	28·91	27·72	4·69	3·52	1·76	1·49
Grenville ...	23·12	24·42	22·24	40·64	2·89	2·08	1·43	1·46
Gunbower ...	14·53	17·68	11·77	17·11	2·00	...	·90	·67
Hampden ...	21·45	31·22	25·19	35·80	4·15	3·89	1·58	1·92
Heytesbury ...	21·42	21·19	29·61	29·89	3·00	3·17	1·33	1·88
Kara Kara ...	12·79	8·31	9·29	11·15	2·16	1·59	·45	·51
Karkarooc ...	4·11	10·58	19·14	24·57	...	...	·22	·73
Lowan ...	13·63	15·61	11·44	15·41	2·62	1·50	·76	·85
Moira ...	20·66	19·10	14·83	18·36	2·06	1·14	1·06	1·05

AVERAGE PRODUCE OF OATS, BARLEY, POTATOES, AND HAY IN EACH COUNTY, 1885–6 AND 1886–7—*continued.*

Counties.	Average Produce to the Acre of—							
	Oats. (Bushels.)		Barley. (Bushels.)		Potatoes. (Tons.)		Hay. (Tons.)	
	1885-6.	1886-7.	1885-6.	1886-7.	1885-6.	1886-7.	1885-6.	1886-7.
Mornington ...	20·71	25·33	15·79	19·52	4·23	4·28	1·30	1·55
Normanby ...	18·58	21·59	19·42	28·47	3·30	2·88	1·43	1·44
Polwarth ...	22·54	30·62	26·85	45·34	3·65	5·26	1·17	2·42
Ripon ...	22·39	22·92	29·82	33·39	2·63	1·49	1·69	1·71
Rodney ...	18·81	15·67	16·24	18·16	3·50	2·40	1·02	·85
Talbot ...	24·83	25·98	21·69	25·98	3·35	3·18	1·48	1·61
Tambo ..	13·64	33·73	13·17	25·36	3·04	4·50	1·11	2·16
Tanjil ...	22·31	21·98	25·58	33·83	3·49	4·55	1·21	2·05
Tatchera ...	17·29	14·34	9·20	6·85	1·00	1·25	·48	·63
Villiers ...	19·81	24·36	34·14	45·61	3·50	3·40	1·65	2·32
Wonnangatta	20·48	24·26	...	...	4·44	3·29	1·34	1·80
Total ...	21·72	22·91	17·58	22·36	3·83	3.41	1·05	1·09

Yield of oats, barley, potatoes, and hay, 1886–7.

846. It will be noticed that in the year ended 1st March, 1887, the highest acreable yield of oats was in Tambo, Benambra, Hampden, Polwarth, Grant, Bourke, and Evelyn, in the order named; that the average yield of barley was highest in Villiers, then in Polwarth, Grenville, Hampden, and Tanjil, in the order named; that potatoes yielded the largest crop per acre in Polwarth and Dargo, where the average was over 5 tons; also that 4 tons per acre was exceeded in Buln Buln, Tanjil, Tambo, and Mornington; that the highest yields of hay were in Polwarth, Villiers, Tambo, Tanjil, and Buln Buln, in which this crop averaged over 2 tons to the acre; and in Dundas, Dargo, Hampden, Heytesbury, Wonnangatta, Benambra, Ripon, Croajingolong, Talbot, Dalhousie, Mornington, and Evelyn, in which it exceeded $1\frac{1}{2}$ tons to the acre.

Yield of principal crops in past two seasons.

847. Comparing the averages of 1886–7 with those of the previous season, an increase is observed in the yield per acre of oats in all the counties except Bendigo, Heytesbury, Kara Kara, Moira, Rodney, Tanjil, and Tatchera; of barley in all except Anglesey, Bourke, Buln Buln, Dalhousie, Evelyn, Grant, and Tatchera; and of hay in all except Bendigo, Bourke, Evelyn, Grant, Gunbower, Moira, and Rodney; but a decrease in the yield per acre of potatoes in all the counties except Benambra, Dargo, Delatite, Dundas, Follett, Heytesbury, Mornington, Polwarth, Tambo, Tanjil, and Tatchera.

848. In the past season, over the colony as a whole, the acreable yield of wheat, potatoes, and hay was below, and that of oats and barley above, the average; thus the yield per acre of wheat was lower than in any of the fifteen other years named in the following table, except 1886 and 1885, the three years ended with 1883 and 1879; that of potatoes was lower than in any except 1881, the four years ended with 1879, 1874, and 1872; and that of hay was lower than in any except 1886, 1885, and 1883. On the other hand, the yield per acre of oats was exceeded only in the four years ended with 1885, and in 1880; and that of barley only in 1884 and 1880:— Yield of principal crops, 1872 to 1887.

AVERAGE PRODUCE OF PRINCIPAL CROPS, 1872 TO 1887.

Year ended March.	Average Produce per Acre of—				
	Wheat.	Oats.	Barley.	Potatoes.	Hay.
	Bushels.	Bushels.	Bushels.	Tons.	Tons.
1872	13·45	18·76	20·00	3·22	1·40
1873	16·51	19·55	20·86	3·45	1·32
1874	13·58	15·69	19·84	2·86	1·27
1875	14·57	18·46	21·01	3·53	1·32
1876	15·49	21·92	22·20	3·37	1·33
1877	13·15	19·91	21·18	3·31	1·22
1878	12·41	19·39	19·81	3·11	1·17
1879	8·76	17·60	18·24	2·71	1·21
1880	13·29	24·00	24·67	4·04	1·45
1881	9·95	17·62	15·57	2·81	1·20
1882	9·40	24·57	19·07	3·43	1·13
1883	9·03	26·17	17·35	3·78	1·06
1884	14·10	25·07	22·84	4·01	1·43
1885	9·52	23·40	17·38	4·16	1·09
1886	8·99	21·72	17·58	3·83	1·05
1887	11·49	22·91	22·36	3·41	1·09
Mean	12·11	21·05	20·00	3·44	1·23

849. In the last three years the statistics of malting barley were distinguished from those of other descriptions of the same cereal. The following is the result of this division for the year under review:— Malting and other barley.

MALTING AND OTHER BARLEY, 1886–7.

Description of Barley.	Area under Crop.	Gross Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.
Malting	27,172	534,208	19·66
Other	9,859	293,644	29·78
Total ...	37,031	827,852	22·36

Yield of malting smaller than of other barley.

850. Of the total area under barley, 73 per cent. was under malting barley; and of the produce of barley, 65 per cent. was of malting barley. In the previous two years these proportions were respectively 84 per cent. and 79 per cent. It will be noticed that this description of barley is by far the less prolific of the two kinds, the average in 1886–7 being under 20 bushels to the acre, as against nearly 30 bushels of the other barley.

Average produce in Australasian colonies.

851. In the following table the average yield of wheat, oats, barley, potatoes, and hay in Victoria is placed side by side with the average of the same crops in the other Australasian colonies* during each of the fourteen years ended with 1886:—

AVERAGE PRODUCE PER ACRE OF THE PRINCIPAL CROPS IN AUSTRALASIAN COLONIES, 1873 TO 1886.

Year ended March.	Victoria.	New South Wales.	Queensland.*	South Australia.	Western Australia.	Tasmania.	New Zealand.
WHEAT.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1873 ...	16·51	16·32	...	11·50	6·02	18·62	24·19
1874 ...	13·58	13·43	...	7·87	13·44	16·17	25·61
1875 ...	14·57	12·87	...	11·75	12·00	18·51	28·15
1876 ...	15·49	14·66	...	11·95	11·00	16·38	31·54
1877 ...	13·15	16·43	...	5·40	12·00	19·30	28·63
1878 ...	12·41	13·84	10·63	7·76	11·00	18·12	26·03
1879 ...	8·76	14·74	13·56	7·15	9·97	16·10	22·94
1880 ...	13·29	15·48	8·11	9·78	14·94	23·22	28·16
1881 ...	9·95	14·69	20·40	4·96	14·94	14·99	25·07
1882 ...	9·40	15·35	8·41	4·57	7·00	18·88	22·69
1883 ...	9·03	16·35	13·89	4·21	11·00	20·27	26·28
1884 ...	14·10	15·00	4·34	7·94	13·00	17·74	26·02
1885 ...	9·52	15·27	16·17	7·53	13·00	19·20	25·43
1886 ...	8·99	10·32	5·11	...	11·50	17·32	24·40
Mean ...	12·05	14·62	11·18	7·10	11·49	18·20	26·08
OATS.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1873 ...	19·55	19·94	...	16·39	13·24	25·85	27·00
1874 ...	15·69	18·71	...	10·61	19·22	20·98	29·81
1875 ...	18·46	16·31	...	14·61	16·00	26·82	35·22
1876 ...	21·92	18·72	...	16·69	15·00	25·40	37·79
1877 ...	19·91	21·16	...	10·65	15·00	24·21	31·24
1878 ...	19·39	19·31	10·11	11·96	14·00	22·32	31·68
1879 ...	17·60	20·24	9·65	12·01	18·02	24·82	30·11
1880 ...	24·00	21·64	24·74	15·02	19·00	28·61	36·53
1881 ...	17·62	19·87	17·94	11·50	19·00	22·13	32·05
1882 ...	24·57	21·81	12·74	10·66	10·00	28·44	28·45
1883 ...	26·17	24·88	16·58	11·13	15·00	27·34	32·89
1884 ...	25·07	21·15	8·90	14·65	17·00	27·39	35·11
1885 ...	23·40	21·87	15·17	12·20	18·00	28·65	34·84
1886 ...	21·72	19·77	4·84	...	14·50	26·82	26·11
Mean ...	21·08	20·38	13·41	12·79	15·93	25·70	32·06

* The produce of crops in Queensland was not given prior to 1878.

Average Produce per Acre of the Principal Crops in Australasian Colonies, 1873 to 1886—*continued.*

Year ended March.	Victoria.	New South Wales.	Queensland.*	South Australia.	Western Australia.	Tasmania.	New Zealand.
Barley.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1873 ...	20·86	18·96	...	14·31	14·00	22·44	21·25
1874 ...	19·84	18·61	...	10·69	17·22	19·33	27·41
1875 ...	21·01	17·33	...	15·18	16·00	24·46	29·39
1876 ...	22·20	20·46	...	14·12	14·00	27·84	35·91
1877 ...	21·18	23·69	...	10·64	15·00	23·58	28·95
1878 ...	19·81	19·68	16·86	11·97	13·00	20·28	25·40
1879 ...	18·24	21·47	15·87	11·82	12·23	24·22	24·77
1880 ...	24·67	21·46	24·68	13·38	18·00	27·91	30·47
1881 ...	15·57	20·35	20·97	11·62	18·00	20·39	26·05
1882 ...	19·07	21·04	12·53	11·47	10·00	22·29	22·28
1883 ...	17·35	20·55	17·82	11·03	14·00	27·79	26·19
1884 ...	22·84	20·96	13·24	14·01	16·00	25·57	29·31
1885 ...	17·38	21·16	24·73	13·48	16·50	29·58	30·37
1886 ...	17·58	16·16	24·20	...	14·50	25·83	25·92
Mean ...	19·83	20·13	18·99	12·59	14·90	24·40	27·40
Potatoes.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1873 ...	3·45	2·98	...	3·28	2·34	3·92	4·92
1874 ...	2·86	2·98	...	3·41	2·67	3·16	4·46
1875 ...	3·53	2·83	...	3·72	3·00	3·75	5·24
1876 ...	3·37	2·98	...	4·52	3·00	3·54	4·89
1877 ...	3·31	3·03	...	2·84	3·00	3·43	5·36
1878 ...	3·11	2·52	1·91	2·51	2·00	3·25	5·38
1879 ...	2·71	3·20	2·33	2·67	2·49	3·37	4·98
1880 ...	4·04	3·23	3·03	3·80	3·50	3·18	5·62
1881 ...	2·81	2·73	2·65	2·89	3·50	3·12	4·94
1882 ...	3·43	2·78	2·36	2·96	2·00	3·47	5·41
1883 ...	3·78	3·00	2·90	3·05	2·50	3·88	5·10
1884 ...	4·01	2·47	2·60	4·22	3·00	3·59	5·36
1885 ...	4·16	2·52	2·92	4·10	3·00	4·37	5·78
1886 ...	3·83	2·55	2·82	...	2·50	4·83	4·58
Mean ...	3·46	2·84	2·61	3·22	2·75	3·63	5·14
Hay.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1873 ...	1·32	1·61	...	1·21	1·51	1·39	1·25
1874 ...	1·27	1·54	...	1·02	2·00	1·08	1·43
1875 ...	1·32	1·37	...	1·26	1·50	1·35	·84
1876 ...	1·33	1·15	...	1·21	1·00	1·42	1·46
1877 ...	1·22	1·43	...	1·95	1·00	1·21	1·31
1878 ...	1·17	1·22	1·30	1·13	1·00	1·13	1·30
1879 ...	1·21	1·66	1·33	·97	1·00	1·19	1·22
1880 ...	1·45	1·45	1·96	1·12	1·25	1·52	1·51
1881 ...	1·20	1·33	1·95	·96	1·25	1·13	1·27
1882 ...	1·13	1·35	1·16	·72	·75	1·29	1·30
1883 ...	1·06	1·35	1·67	·75	1·00	1·30	1·24
1884 ...	1·43	1·28	1·39	1·06	1·00	1·29	1·39
1885 ...	1·09	1·24	1·40	·93	1·00	1·24	1·41
1886 ...	1·05	·88	1·06	...	1·00	1·24	1·14
Mean ...	1·23	1·35	1·47	1·10	1·16	1·27	1·29

Note.—All the calculations in this table were made in the office of the Government Statist, Melbourne. For the land under and total produce of each crop in the respective colonies during the fourteen years ended with 1886–7, see Summary of Australasian Statistics (third folding sheet) *ante;* and for average yields per acre in 1886–7, see Table XVI. of Appendix A *post.*

* See footnote to preceding page.

Colonies with highest and lowest average yields.

852. It will be observed that, according to the mean of the whole period, the average produce of wheat, oats, barley, and potatoes is much the highest in New Zealand, and that of hay is highest in Queensland. The lowest average yield of wheat, oats, barley, and hay is in South Australia; and the yield of potatoes is lowest in Queensland. Victoria stands third in regard to the average per acre of potatoes and oats, and fourth in regard to the remaining crops.

Average produce 1885-6 and previous years compared.

853. It will further be noticed that in 1885–6 the average produce of all the crops in New South Wales and New Zealand was below the mean of the fourteen years to which reference is made; which was also the case in respect to all the crops except barley and potatoes in Queensland; all except wheat in Western Australia; all except oats and potatoes in Victoria; and all except oats, barley, and potatoes in Tasmania. No agricultural statistics were collected in South Australia for the year 1885-6, but it is understood that the yield of the crops generally in that colony was not up to the average.

Land under crop in British and Foreign countries.

854. The next table shows the acreage under various crops in the United Kingdom, Australasia, British North America, the Cape of Good Hope, the principal countries on the continent of Europe and the United States of America. All the information has been taken from official documents:—

LAND UNDER CERTAIN CROPS IN SOME BRITISH AND FOREIGN COUNTRIES (000'S OMITTED).

Country.	Year.	Number of Acres under—				
		Wheat.	Oats.	Barley.	Rye.	Potatoes.
The United Kingdom...	1886	2,358,	4,419,	2,433,	67,	1,364,
Australasia	1885–6	3,471,	598,	143,	...	106,
Ontario	1881	1,949,	...	...	...	181,
Quebec, Nova Scotia, and New Brunswick	1881	311,	...	...	...	235,
Manitoba	1881	51,	...	...	...	4,
Prince Edward Island, British Columbia, and the Territories ...	1881	56,	...	...	...	43,
Cape of Good Hope ...	1875	188,	115,	29,	...	9,
Austria	1885	2,949,	4,518,	2,881,	4,926,	2,712,
Belgium	1883	811,	616,	99,	686,	492,
Denmark	1881	138,	991,	781,	660,	110,
France	1884	17,419,*	9,132,	2,612,	4,262,	3,479,
Germany	1884	4,740,	9,308,	4,286,	14,403,	7,182,
Holland	1884	220,	278,	120,	498,	357,
Hungary	1885	6,763,	2,564,	2,583,	2,794,	1,036,
Italy	1883	11,700,	939,	1,250,†	...	173,
Norway	1875	11,	224,	138,	37,	86,
Russia in Europe ...	1881	28,947,	30,890,	12,454,	64,609,	3,713,
Sweden	1884	1,100,†	2,543,‡	...	...	387,
United States ...	1884	39,476	21,301,	2,609,	2,344,	2,217,

* Including spelt (*Triticum spelta*). † Including also rye.
‡ Including also barley and mixed corn.

855. The official returns of the various countries contain statements of produce, and these are given in the following table. The produce of potatoes is not returned in tons, as in the Australasian colonies, but in bushels :— Gross yield of crops in British and Foreign countries.

GROSS PRODUCE OF CERTAIN CROPS IN SOME BRITISH AND FOREIGN COUNTRIES (000's OMITTED).

Country.	Year.	Number of Bushels* raised of—				
		Wheat.	Oats.	Barley.	Rye.	Potatoes.
The United Kingdom	1886	63,348,	169,376,	78,310,	...	233,419,
Australasia	1885–6	31,683,	14,472,	2,772,	...	18,894,
Ontario	1881	27,406,	40,210,	14,280,	...	18,894,
Quebec, Nova Scotia, and New Brunswick	1881	3,070,	25,161,	2,064,	...	29,213,
Manitoba	1881	1,034,	1,270,	253,	...	556,
Prince Edward Island, British Columbia, and The Territories ...	1881	840,	3,852,	247,	...	6,605,
Cape of Good Hope ...	1875	1,688,	918,	448,	...	372,
Austria	1885	46,793,	91,821,	50,448,	76,680,	356,777,
Belgium	1884	15,988,	25,090,	3,640,	17,355,	141,175,*
Denmark	1885	5,326,	31,777,	22,346,	16,830,	13,453,
France	1884	314,135,†	242,216,	53,464,	72,204,	410,600,
Germany	1884	91,058,	233,441,	98,280,	240,280,	945,342,
Holland	1884	5,710,	10,931,	4,736,	10,273,	72,309,
Hungary	1885	110,296,	52,764,	52,638,	40,423,	151,672,*
Italy	1884	120,575,	15,137,‡	15,049,‡§	...	22,626,*‡
Norway	1875	276,	8,896,	4,285,	1,016,	19,591,
Russia in Europe ...	1884	258,562,	485,353,	128,948,	664,958,	286,334,
Sweden	1885	3,767,	49,899,	13,048,	21,905,	50,795,
United States ...	1884	496,740,	565,390,	59,294,	27,743,	184,318,

856. Until 1884 no official return was made of the produce of crops in the United Kingdom. Estimates more or less reliable have frequently been made by private persons, especially of the wheat yield. The London *Statist's* Annual Supplement of the 31st January, 1885, gives a statement originally taken from *The Times*, and evidently prepared with great care, of the assumed yield per acre of this crop in the eighteen years ended with 1883, and this has been supplemented by Average yield of wheat in United Kingdom.

* The produce was originally given in Imperial bushels, except in the case of Germany, where it was stated in cwts., and the United States in Winchester bushels. Besides, the potato crop of Belgium, Hungary, and Italy was stated in cwts., and that of Australasia in tons. All these have been converted into Imperial bushels upon the assumption that 60 lbs. of wheat, 40 lbs. of oats, 50 lbs. of barley or rye, and 56 lbs. of potatoes are in each case equal to an Imperial bushel; also that a Winchester bushel is equivalent to ·969,447 of an Imperial bushel.

† Including also spelt (*Triticum spelta*).

‡ Return for 1883.

§ Including also rye.

the official figures for the three years ended with 1886, published by the Agricultural Department of the Privy Council Office*:—

AVERAGE PRODUCE PER ACRE OF WHEAT IN THE UNITED KINGDOM, 1866 TO 1886.

	Bushels per acre.		Bushels per acre.
1866	27	1877	22
1867	25	1878	30
1868	34	1879	18
1869	27	1880	26
1870	32	1881	27
1871	27	1882	28
1872	23	1883	26
1873	25	1884	29·9
1874	31	1885	31·2
1875	23	1886	26·9
1876	27		

Wheat yield in United Kingdom and colonies compared.

857. The average produce in the 21 years was within a fraction of 27 bushels per acre, which is much above the yield in any of the Australasian colonies. The yield in 1886 (27 bushels to the acre) was, it will be observed, equalled in five and exceeded in seven previous seasons.

Average yield of crops in British and Foreign countries.

858. The acreable produce during several years in the countries named in a previous table has been calculated, where possible, in the office of the Government Statist, Melbourne, and is given in the following table :—

AVERAGE PRODUCE PER ACRE OF SOME BRITISH AND FOREIGN COUNTRIES.

Country.	Bushels† per Acre of—				
	Wheat.	Oats.	Barley.	Rye.	Potatoes.
The United Kingdom ...	26·9	38·4	32·3	...	171·1
Australasia	9·1	24·2	19·4	...	155·0
Ontario	14·1	...	...	...	104·4
Quebec, Nova Scotia, and New Brunswick ...	9·9	...	...	...	124·3
Manitoba	20·3	...	...	...	139·0
Prince Edward Island, British Columbia, and the Territories ...	15·0	...	...	...	153·6
Cape of Good Hope ...	9·0	8·1	15·4	...	41·2
Austria	15·9	20·3	17·5	15·6	131·6
Belgium	19·7	40·7	36·8	25·3	287·0
Denmark	38·7	32·1	28·6	25·5	122·3
France	16·9	26·0	20·1	15·9	108·6
Germany	19·2	25·1	22·9	16·7	131·6
Holland	26·0	39·3	39·5	20·6	202·6
Hungary	16·3	20·6	20·4	15·8	146·4
Italy	12·1	19·3	15·3	...	147·9
Norway	25·1	39·7	31·0	27·5	227·8
Russia in Europe ...	4·6	12·3	6·7	6·2	76·9
United States ...	11·7	26·0	21·9	12·8	86·3

* *Agricultural Produce Statistics*, 1886. Eyre and Spottiswoode, London.
† See footnote (*) to table following paragraph 855 *ante*.

859. It will be observed that the average yield of wheat is 39 bushels in Denmark, 27 bushels in the United Kingdom, 26 bushels in Holland, 25 bushels in Norway, 20 bushels in Manitoba and Belgium, 19 bushels in Germany, 17 bushels in France, and 16 bushels in Hungary and Austria, 15 bushels in British Columbia, 14 bushels in Ontario, 12 bushels in Italy, nearly 12 bushels in the United States, and nearly 10 bushels in Quebec, all of which were above the average of Australasia; but the wheat yields of the Cape of Good Hope and European Russia were below the average of these colonies. Yield of wheat in Foreign countries and Australasia.

860. According to the figures, the average yield of oats in Australasia is higher than in the Cape of Good Hope, Austria, Germany, Hungary, Italy, or European Russia, but lower than in any other of the countries named; the yield of barley is higher than in the Cape of Good Hope, Austria, Italy, or European Russia, but below that in the other countries. The yield of potatoes in Australasia is about equal to that of British Columbia, and above that in any of the other countries named except the United Kingdom, Belgium, Holland, and Norway. Yield of oats, barley, and potatoes in Foreign countries and Australasia.

861. According to statistics compiled by the Department of Agriculture at Washington, U.S.A., the wheat crop of various countries in 1885 and 1886, reduced to Winchester bushels, was as follows:— Wheat crop of the world.

WHEAT CROP OF THE WORLD, 1885 AND 1886.

Countries.	Winchester Bushels.	
	1885.	1886.
EUROPE.		
Austria	39,725,000	31,402,613
Belgium	19,573,926	18,514,688
Denmark	5,000,000	4,731,531
France	311,733,033	299,107,620
Germany	95,505,881	82,000,000
Great Britain and Ireland	82,145,888	65,285,353
Greece	4,965,625	4,937,250
Hungary	114,638,868	106,150,875
Italy	118,244,589	129,412,133
Netherlands	4,965,625	4,937,250
Portugal	7,661,250	8,228,750
Roumania	22,629,063	22,629,063
Russia (including Poland)	209,192,256	213,907,084
Servia	4,681,875	4,525,813
Spain	113,500,000	131,660,000
Sweden and Norway	2,837,500	2,468,625
Switzerland	2,057,188	1,645,750
Turkey in Europe	45,400,000	41,143,750
Other European Countries	557,500	...

NOTE.—Some of the figures for 1885 have been amended since their first publication in 1886. The blanks in the 1886 column would appear to indicate that the returns for that year were incomplete.

WHEAT CROP OF THE WORLD, 1885 AND 1886—*continued.*

Countries.	Winchester Bushels. 1885.	1886.
ASIA.		
Asia Minor...	43,200,938	...
India	302,265,077	258,317,632
Persia	26,743,438	...
Syria	16,457,500	...
AFRICA.		
Algeria	22,700,000	32,915,000
Egypt	14,187,500	16,457,500
South-East Africa	8,228,750	...
Tunis	2,837,500	...
AMERICA.		
Antilles	411,438	...
Canada	35,000,000	37,219,234
Central America	411,438	...
Chili, Argentine Republic, &c. ...	25,000,000	21,800,625
Mexico	4,114,375	...
United States	357,112,000	457,218,000
AUSTRALASIA	38,513,234	32,662,926
Total	2,102,198,255	2,029,279,065

NOTE.—The blanks in the 1886 column would appear to indicate that the returns of that year are incomplete.

Value of world's wheat crop.

862. A Winchester bushel being about ·97 (·969,447) of an Imperial bushel, the total yield, supposing the above figures to be correct, would be 2,039,132,000 Imperial bushels in 1885, and 1,968,401,000 such bushels in 1886; and the value at four shillings per Imperial bushel would be four hundred and eight millions sterling (£407,826,000) in the former, and nearly three hundred and ninety-four millions sterling (£393,680,000) in the latter year.

Government Experimental Farm.

863. In order to carry out experiments, devised for the purpose of ascertaining the suitability of the Victorian climate and soil for various kinds of useful products, and of obtaining data respecting the rotation of crops, as well as for the instruction of students in agriculture, a block of 4,806 acres, subsequently increased by 40 acres, was reserved in 1874 at Dookie, situated in Moira, a county in the North-eastern district of Victoria, on which to found a Government Experimental Farm; but it was not until April, 1877, that the fencing-in of the land was commenced, after which, in May, 1878, a tender for grubbing, burning-off, and ploughing was accepted. The existence of the farm, however, really dates from November, 1878, when a manager was appointed, and live stock was placed on the land, and in the following April the first crop

of wheat was sown on about 40 acres, which was harvested in due course in the December and January following—producing an average of 40 bushels per acre. Besides this, 20 acres were laid out with experimental crops, and a further area was placed under green stuff. By April 1881, 430 acres had been grubbed and cleared, of which 250 acres had been broken up under the plough, and about 30 acres had been planted with vines, olives, oranges, citrons, limes, figs, and other fruit trees; whilst the experimental grounds already alluded to had been divided into plots of one-tenth of an acre each, on which a series of experiments in rotation cropping, various systems of manuring, &c., had been commenced. The following account of the present state of the farm has been furnished for this work by Mr. D. Martin, Secretary for Agriculture:—

"The farm has, under the provisions of the *Agricultural Colleges Act* 1884, been vested in trustees, and all moneys received from the sale of stock and produce since June, 1885, have been paid into the Agricultural College Fund.

"A change of management took place in September, 1886.

"A sale of unprofitable stock took place in October last, realizing £554 17s. 10d. net return.

"The total receipts for the year were £1,628 19s. 5d., and the expenditure £2,935 16s. 3d. Of the amounts expended, £713 10s. 4d. were for permanent improvements, £237 4s. 7d. for plant, and £576 4s. 1d. for live stock. If these amounts were deducted from the expenditure, there would be a profit over working expenses of £220 2s. 2d., and if the cost of repairing implements and machinery (£290 14s. 6d.) be added, the profits would be raised to £510 16s. 8d.

"A new dairy has been built, and one of De Laval's cream separators fitted up therein. Excellent butter is now made throughout the hottest weather.

"Ninety-six acres of wheat were reaped, yielding 16 bushels per acre; 45 acres of oats, yielding 254 bags; and 5 acres of vines, yielding 1,200 gallons of wine. The olives have yielded 100 gallons of oil. A portion has been sold at ten shillings per gallon.

"A hundred tons of ensilage were made in November. It was opened in good condition, and has been of great value to milch cows, &c.

"Salt bush, Johnson grass, lucerne, French millet, broom corn, sorghum saccharatum, and planter's friend have been grown with success.

"Experiments are being tried in the cultivation of 30 varieties of wheat, 24 kinds of clover and grass; also chicory, turnips, mangolds, beans, and medicinal plants.

"A hundred acres of virgin soil have been cleared, and are being fallowed, and consequently 300 acres of well cultivated, fertile land will be under crop next year.

"Summary of value of land, and of dead and live stock:—

4,846 acres of land at 55s.	£13,327
Draught horse stock	665
Light horses	67
Shorthorn cattle	317
Hereford cattle	53
Ayrshire cattle	71
Milch cows	126
Other cows	175
Sheep	630
Pigs	89
Implements and machinery	787
Harness and saddlery	62
Furniture	66
Buildings	2,094
Oil, wine vats, and sundries	226
	£18,755"

Agricultural colleges.

864. An Act for the establishment of Agricultural Colleges* was passed towards the close of 1884. The following particulars respecting this Act and its operations have been supplied by Mr. D. Martin, the Secretary for Agriculture :—

"This Act provides for the permanent reservation from sale of 150,000 acres of Crown lands by way of endowment of State Agricultural Colleges and Experimental Farms, which, together with other lands reserved as sites for such institutions prior to the passing of the Act, are to be vested in three trustees to be appointed by the Governor in Council. The Act also provides for the appointment of a Council of Agricultural Education, consisting of eleven members, three of whom are to be the trustees just mentioned, one to be the Secretary for Agriculture (who is to be the treasurer of the council) five to be elected annually by the governing bodies of Agricultural Societies in Victoria, and two to be appointed by the Governor in Council. The trustees, subject to regulations made by the Council of Agricultural Education, may lease lands for building purposes for periods not exceeding 33 years, and for other purposes for periods not exceeding 14 years, and upon a requisition of the same council may dedicate, as sites for Agricultural Colleges and Experimental Farms, any lands purchased by them or described in the Act. All moneys received by the council from the sale of stock or farm produce, or as fees from students at Agricultural Colleges and Experimental Farms, together with all other money coming to the council, are to form a fund to be called the Agricultural College Fund, which is to be expended in providing instruction for students, or in purchasing stock, seed, agricultural implements, and all other necessaries for the education of the students and the proper working of the Experimental Farms, &c. The council, subject to Ministerial approval, have the appointment of professors, teachers, officers, and servants for the Colleges and Experimental Farms. Most of the proceedings of the trustees and of the council have to be approved by the Governor in Council before coming into effect. The Act was amended in 1885,† so as to provide for five members being elected by members of Agricultural Societies in lieu of by the governing bodies of such societies; also for the elections to be held once in every three years, instead of being held annually.

"Of the land intended as endowment, 122,077 acres have been reserved and vested in the trustees, and 107,601 acres of the land so vested have been leased for agricultural and grazing purposes. The total of the annual rents payable amount to £5,167.

"The first school was erected on the Dookie Experimental Farm Reserve. The buildings comprise lecture hall, dining hall, class rooms, teachers' quarters, sleeping accommodation for forty pupils, baths, out offices, &c. The school was opened on the 1st October, 1886, with the full number of pupils for which there is accommodation.

"The course of instruction comprises chemistry, botany, entomology, geology, advanced English, arithmetic, mensuration, surveying, bookkeeping, practical work on the farm, instruction in field operations, the use of farm implements and machinery, and the management of live stock.

"No fee is charged for instruction, but a payment of £25 per annum has to be made for each pupil to cover the cost of maintenance."

Breadstuffs available for consumption.

865. The following table shows, for 1840 and each subsequent year, the quantity of wheat grown in Victoria, and the quantity of wheat, flour, and biscuit imported after deducting exports, or exported after deducting imports ; also the residue of breadstuffs left for consumption during each of those years :—

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* The Agricultural Colleges Act 1884 (48 Vict. No. 825).

† By the Agricultural Colleges Act 1885 (49 Vict. No. 871).

Breadstuffs Available for Consumption, 1840 to 1886.

Year.	Wheat grown in Victoria.	Wheat, Flour, and Biscuit.*		
		Imported after deducting Exports.	Exported after deducting Imports.	Available for Consumption.
	bushels.	bushels.	bushels.	bushels.
1840	12,600	57,771	...	70,371
1841	50,420	116,350	...	166,770
1842	47,840	119,004	...	166,844
1843	55,360	58,616	...	113,976
1844	104,040	98,581	...	202,621
1845	138,436	74,699	...	213,135
1846	234,734	43,928	...	278,662
1847	345,946	36,871	...	382,817
1848	349,730	64,726	...	414,456
1849	410,220	76,092	...	486,312
1850	525,190	55,564	...	580,754
1851	556,167	216,811	...	772,978
1852	733,321	1,208,006	...	1,941,327
1853	498,704	1,499,994	...	1,998,698
1854	154,202	1,385,465	...	1,539,667
1855	250,091	1,985,496	...	2,235,587
1856	1,148,011	2,236,406	...	3,384,417
1857	1,858,756	1,958,905	...	3,817,661
1858	1,808,439	1,504,760	...	3,313,199
1859	1,563,113	1,957,610	...	3,520,723
1860	2,296,157	1,565,423	...	3,861,580
1861	3,459,914	1,522,517	...	4,982,431
1862	3,607,727	183,106	...	3,790,833
1863	3,008,487	191,107	...	3,199,594
1864	1,338,762	1,868,990	...	3,207,752
1865	1,899,378	1,800,932	...	3,700,310
1866	3,514,227	1,754,699	...	5,268,926
1867	4,641,205	15,190	...	4,656,395
1868	3,411,663	162,038	...	3,573,701
1869	4,229,228	719,589	...	4,948,817
1870	5,697,056	...	95,654	5,601,402
1871	2,870,409	1,179,583	...	4,049,992
1872	4,500,795	389,963	...	4,890,758
1873	5,391,104	...	138,088	5,253,016
1874	4,752,289	...	40,714	4,711,575
1875	4,850,165	200,369	...	5,050,534
1876	4,978,914	258,931	...	5,237,845
1877	5,279,730	...	384,118	4,895,612
1878	7,018,257	...	1,005,968	6,012,289
1879	6,060,737	...	957,384	5,103,353
1880	9,398,858	...	3,578,733	5,820,125
1881	9,727,369	...	3,892,974	5,834,395
1882	8,714,377	...	3,321,532	5,392,845
1883	8,751,454	...	2,376,530	6,374,924
1884	15,570,245	...	8,232,605	7,337,640
1885	10,433,146	...	3,745,985	6,687,161
1886	9,170,538	...	2,226,907	6,943,631

Note.—In 1886 the imports of breadstuffs amounted to 225,489 bushels, valued at £42,666, but the exports of breadstuffs amounted to 2,452,396 bushels, valued at £559,437. The balance in favour of exports was, therefore, 2,226,907 bushels, valued at £516,771.

* The quantities of flour and biscuit imported and exported are reduced to their equivalent in bushels, on the assumption that 1 bushel of wheat produces 45 lbs. of either of those articles.

Population and breadstuffs.

866. It will be observed that only in the last ten years and three previous ones, viz., 1870, 1873, and 1874, has the colony raised enough breadstuffs for the consumption of its own inhabitants. In each of these thirteen years there was a surplus of Victorian-grown wheat remaining for export, the quantity in 1884, however, being larger than that in any two of the other years. The following table shows, for each year, the mean population of Victoria, the quantity of breadstuffs available for consumption, and the probable manner of consumption, distinguishing the estimated quantity of wheat used for seed, or for the feeding of live stock, poultry, &c., from the wheat, flour, and biscuit used for food, the total quantity of the latter being shown as well as the quantity per head:—

POPULATION AND BREADSTUFFS, 1840 TO 1886.

Year.	Mean Population.	Wheat, Flour, and Biscuit.*			
		Quantity Available for Consumption.	Probable Manner of Consumption.		
			For Seed, &c.	For Food.	
				Total.	Per Head.
		bushels.	bushels.	bushels.	bushels.
1840 ...	8,056	70,371	3,880	66,491	8·25
1841 ...	15,353	166,770	3,404	163,366	10·64
1842 ...	22,107	166,844	4,864	161,980	7·33
1843 ...	23,951	113,976	9,348	104,628	4·37
1844 ...	25,418	202,621	13,839	188,782	7·43
1845 ...	29,007	213,135	22,933	190,202	6·56
1846 ...	34,807	278,662	31,604	247,058	7·10
1847 ...	40,635	382,817	35,359	347,458	8·55
1848 ...	47,163	414,456	38,775	375,681	7·97
1849 ...	58,805	486,312	48,494	437,818	7·45
1850 ...	71,191	580,754	57,020	523,734	7·36
1851 ...	86,825	772,978	59,247	713,731	8·22
1852 ...	132,905	1,941,327	33,646	1,907,681	14·35
1853 ...	195,378	1,998,698	15,107	1,983,591	10·15
1854 ...	267,371	1,539,667	25,654	1,514,013	5·66
1855 ...	338,315	2,235,587	85,372	2,150,215	6·36
1856 ...	380,942	3,384,417	160,310	3,224,107	8·46
1857 ...	430,347	3,817,661	174,460	3,643,201	8·47
1858 ...	483,827	3,313,199	156,468	3,156,731	6·52
1859 ...	517,390	3,520,723	214,185	3,306,538	6·39
1860 ...	534,055	3,861,580	322,503	3,539,077	6·62
1861 ...	539,824	4,982,431	393,844	4,588,587	8·50
1862 ...	548,080	3,790,833	324,018	3,466,815	6·33
1863 ...	562,960	3,199,594	298,784	2,900,810	5·15
1864 ...	586,450	3,207,752	250,080	2,957,672	5·04
1865 ...	611,218	3,700,310	357,256	3,343,054	5·47
1866 ...	629,038	5,268,926	417,176	4,851,750	7·71
1867 ...	644,276	4,656,395	433,978	4,222,417	6·55
1868 ...	663,092	3,573,701	519,608	3,054,093	4·61
1869 ...	687,202	4,948,817	577,028	4,371,789	6·36

* See footnote (*) on preceding page.

POPULATION AND BREADSTUFFS, 1840 TO 1886—*continued.*

Year.	Mean Population,	Wheat, Flour, and Biscuit.*			
		Quantity Available for Consumption.	Probable Manner of Consumption.		
			For Seed, &c.	For Food.	
				Total.	Per Head.
		bushels.	bushels.	bushels.	bushels.
1870 ...	713,195	5,601,402	568,334	5,033,068	7·06
1871 ...	737,005	4,049,992	669,218	3,380,774	4·59
1872 ...	753,198	4,890,758	653,128	4,237,630	5·63
1873 ...	765,511	5,253,016	699,952	4,553,064	5·95
1874 ...	777,656	4,711,575	665,872	4,045,703	5·20
1875 ...	787,337	5,050,534	642,802	4,407,732	5·60
1876 ...	796,558	5,237,845	802,834	4,435,011	5·57
1877 ...	808,605	4,895,612	1,129,128	3,766,484	4·66
1878 ...	821,466	6,012,289	1,383,244	4,629,045	5·64
1879 ...	834,030	5,103,353	1,414,376	3,688,977	4·42
1880 ...	850,343	5,820,125	1,954,570	3,865,555	4·55
1881 ...	868,942	5,834,395	1,853,458	3,980,937	4·58
1882 ...	890,220	5,392,845	1,938,724	3,454,121	3·88
1883 ...	910,982	6,374,924	2,208,784	4,166,140	4·57
1884 ...	933,894	7,337,640	2,192,708	5,144,932	5·51
1885 ...	958,595	6,687,161	2,040,164	4,646,997	4·85
1886 ...	987,094	6,943,631	2,105,370	4,838,261	4·90

867. The figures in the last column but two (For Seed, &c.) are intended to represent the whole quantity of wheat used otherwise than for the food of human beings. This is estimated arbitrarily at 2 bushels per acre of land returned as being under wheat in the year following that to which the figures in any line relate. It is known that the proportion actually sown is generally much less than this; but as a certain quantity of wheat is used for feeding swine, poultry, &c., and some is wasted or becomes spoilt, the allowance made has been thought not too high. If $1\frac{1}{2}$ bushel per acre be considered a sufficient allowance for seed, the quantity in 1886 left for consumption, waste, &c., would be 5,364,604 bushels, equal to about $5\frac{2}{5}$ bushels per head; or, if only 1 bushel per acre be allowed for seed, the residue would amount to 5,890,946 bushels, or close upon 6 bushels per head. Allowance for seed, waste, &c.

868. The estimated average quantity of breadstuffs available for food to each individual of the population is shown in the last column of the table. This will be found to vary in different years, ranging from over 14 bushels in 1852, and between 10 and 11 bushels in 1841 and 1853, to between 4 and 5 bushels in 1843, 1868, 1871, 1877, and in most recent years; but in only one year, viz., 1882, to less than 4 bushels per head. Consumption of breadstuffs per head.

* See footnote (*) on page 415 *ante.*

Average consumption of breadstuffs.

869. The quantity of breadstuffs available for annual food-consumption per head has averaged 5·72 bushels over the whole period of forty-seven years, but during the last five years it averaged only 4·75 bushels, or about a bushel less. In the present state of the Victorian population, it may be fair to assume that from $4\frac{1}{2}$ bushels to $4\frac{3}{4}$ bushels per head, irrespective of the quantity required for seed, is amply sufficient to supply the wants of any given year.

Breadstuffs available for consumption in United Kingdom.

870. In the United Kingdom, animal food, in consequence of its high price, is used much more sparingly than it is in this country, especially by the working classes, and therefore, as a natural consequence, the consumption of breadstuffs in proportion to the numbers of the population is somewhat higher than it is here. The following table shows the estimated mean population of the United Kingdom during each of the twenty harvest years (or periods extending from the 1st September to the 31st August) ended with 1885–6; also the total number of bushels, and number of bushels per head, of grown and imported wheat available for consumption, after deducting seed, in each of the same years :—

BREADSTUFFS AVAILABLE FOR CONSUMPTION IN THE UNITED KINGDOM, 1867 TO 1886.

Year ended 31st August.	Mean Population.	Bushels of Wheat* available for Food.	
		Total Number (000's omitted).	Number per Head.
1867	30,248,936	152,320,	5·03
1868	30,523,478	155,200,	5·08
1869	30,814,914	189,360,	6·14
1870	31,108,133	176,560,	5·68
1871	31,410,776	176,400,	5·61
1872	31,728,316	170,320,	5·37
1873	32,028,317	174,640,	5·45
1874	32,325,778	174,240,	5·39
1875	32,641,568	202,720,	6·21
1876	32,978,682	184,512,	5·59
1877	33,329,099	174,568,	5·24
1878	33,681,904	191,480,	5·68
1879	34,036,546	209,936,	6·17
1880	34,364,077	179,120,	5·21
1881	34,775,970	201,992,	5·81
1882	35,410,040	210,592,	5·95
1883	35,517,510	241,568,	6·80
1884	35,838,516	191,520,	5·37
1885 †	36,179,000	208,000,	5·75
1886 †	36,519,700	206,887,	5·67

* The total number of bushels of wheat available for consumption has been taken from articles in the Supplement to the *Statist*, London Journal. The calculations have been made in the office of the Government Statist, Melbourne.

† Partly estimated.

871. As a result of calculations derived from the figures in the table, it appears that in the twenty years named the average quantity of wheat available for consumption in the United Kingdom was 5·66 bushels per head, or about a bushel per head more than is apparently found sufficient for the requirements of the Victorian population. Average consumption of wheat in United Kingdom.

872. According to Mr. Coghlan, the Government Statistician of New South Wales,* the consumption of wheat per head is considerably greater in that colony than in Victoria, and even greater than in the United Kingdom, the quantity available per head in 1886 being 6·2 bushels, and the average quantity in the five years ended with 1886 being 6·5 bushels. According to the same authority, New South Wales has never grown nearly enough wheat for her own consumption, the quantity imported in 1886, after deducting the exports, being 3,675,383 bushels, whilst only 2,733,133 bushels were grown in the colony. Consumption of wheat in New South Wales.

873. From somewhat similar calculations taken from the official returns of the United States, the estimated consumption of wheat per head of the population of that country ranged, during the fourteen years ended with 1880, from 4·08 Winchester bushels† in 1867 to 6·09 in 1878, the mean during the period being 5·30 Winchester bushels, or about 5·13 Imperial bushels. This result, it will be observed, is much higher than that shown by the Victorian returns for recent years. It should be pointed out, however, that, in the United States returns, no deduction has been made for the wheat required for seed, so that the quantity available for food consumption is considerably less than that shown by the figures. Consumption of breadstuffs per head in United States.

874. Baron Kolb, the eminent German statistician, whilst admitting the imperfections of the data on which he worked, gives the following as the probable consumption of breadstuffs per head in various places,‡ his estimate for England being nearly double that given for the United Kingdom in the last table :— Consumption of breadstuffs in various places.

CONSUMPTION OF BREADSTUFFS PER HEAD IN VARIOUS COUNTRIES AND CITIES.

	Lbs. per Head.		Bushels per Head.
France	495	equal to	11·00
Baden	471	„	10·47
England	450	„	10·00
Paris	365	„	8·11
Prussia	345	„	7·67
Frankfort on Main ...	322·45	„	7·16
Darmstadt	321·4	„	7·14
Bremen	123·7	„	2·75

* See *Handbook to the Statistical Register of New South Wales*, 1886. Potter, Sydney, 1887.

† The Winchester bushel is smaller than the Imperial bushel by one thirty-second ($\frac{1}{32}$) part.

‡ *Condition of Nations*, by G. F. Kolb, translated by Mrs. Brewer, with notes by E. W. Streeter, page 961. George Bell and Sons, London, 1880.

Imports and exports of breadstuffs, 1837 to 1886.

875. The quantity and declared value of the Victorian imports and exports of breadstuffs during the fifty years, 1837 to 1886, are set down in the following table :—

IMPORTS AND EXPORTS OF BREADSTUFFS,* 1837 TO 1886.

Wheat, Flour, and Biscuit.	Quantity.	Value.
	bushels.	£
Imported, 1837 to 1886	33,079,612	13,924,308
Exported, „ „	36,423,580	9,145,790
Imports in excess of exports ...	...	4,778,518
Exports in excess of imports ...	3,343,968	...

Excess of quantity exported, of value imported.

876. It will be observed that the quantity of breadstuffs exported from the colony from the period of its first settlement to the end of 1886 exceeded that imported during the same period by $3\frac{1}{3}$ million bushels; but, in consequence of the prices of wheat and flour during the earlier years, in which the imports invariably exceeded the exports, being much higher than in the later years, in which the exports exceeded the imports, the declared value of the breadstuffs received has exceeded that of those sent away by over $4\frac{3}{4}$ millions sterling.

Net imports of agricultural products.

877. The following are the values of the net imports—*i.e.*, the values of imports after the values of the exports have been deducted—of certain vegetable productions during each of the six years ended with 1886. All the articles named are capable of being produced, and all, or nearly all, are to a certain extent now produced in the colony :—

NET IMPORTS† OF CERTAIN ARTICLES OF AGRICULTURAL PRODUCE, 1881 TO 1886.

Articles.	Balance of Imports over Exports in—					
	1881.	1882.	1883.	1884.	1885.	1886.
	£	£	£	£	£	£
Oats	74,924	29,621	51,739	36,249	86,474	69,669
Barley	...	3,033	27,356	...	16,677	4,949
Malt	...	...	...	...	...	9,903
Maize	105,739	32,379	59,620	7,232	13,853	18,956
Maizena and corn flour	7,654	5,098	4,899	8,599	5,289	13,642

* The quantity and value of breadstuffs imported and exported during each year will be found in the Statistical Summary of Victoria (first folding sheet) *ante*.

† The total imports and total exports of these articles during 1886 will be found in the table of Imports and Exports in Part Interchange *post*, under Orders 22, 23, 25, and 26.

NET IMPORTS* OF CERTAIN ARTICLES OF AGRICULTURAL PRODUCE, 1881 TO 1886—*continued.*

Articles.	Balance of Imports over Exports in—					
	1881.	1882.	1883.	1884.	1885.	1886.
	£	£	£	£	£	£
Beans, pease, and split pease	...	...	...	...	...	1,667
Arrowroot	1,793	1,208	2,784	2,183	2,790	558
Macaroni and vermicelli	1,286	1,391	1,465	1,298	2,441	2,066
Starch	14,677	4,057	7,199	9,176	8,544	14,517
Fruit— fresh, bottled, dried, currants and raisins	154,737	166,059	144,350	113,587	152,967	146,678
Jams, jellies, and preserves	...	2,787	...	...	...	...
Nuts, almonds, walnuts	7,349	6,722	6,725	4,582	9,429	7,033
Peanuts	...	612	233	...	474	689
Ginger	1,307	1,050	954	2,347	3,845	3,322
Opium	36,182	66,010	43,168	37,850	28,728	32,713
Hops	28,442	31,639	43,639	...	6,185	13,500
Chicory	...	171	...	...	2,269	...
Pickles	5,508	7,371	2,554	4,688	5,570	9,386
Mustard	12,249	15,039	12,337	8,304	9,789	17,920
Oil, olive and salad ...	12,014	17,569	12,285	11,427	18,496	15,204
„ linseed	22,995	30,286	27,801	31,121	31,484	31,404
„ castor	37,906	4,559	39,669	24,238	10,797	31,700
Linseed meal ...	...	104	40	888	446	...
Tobacco, cigars, and snuff	31,270	96,206	66,222	101,836	116,212	179,955
Flax (Phormium) ...	6,811	10 419	6,257	6,756	8,312	5,215
Hemp	11,550	52,750	41,702	36,208	29,927	17,994
Jute	6,117	16,030	6,057	9,716	3,449	1,126
Broom corn and millet	5,531	6,351	7,575	6,240	6,959	7,447
Bark	...	...	...	6,492	20,905	2,287
Cork	16,897	22,894	21,924	19,193	13,867	19,811
Vegetables (preserved)	...	...	653	...	427	897
Canary seed ...	1,248	1,063	549	1,449	2,008	1,314
Grass and clover seed	2,990	9,560	4,769	7,063	14,667	11,333
Seeds, undescribed ...	...	2,140	19	...	...	11,310
Tares	53	161	72	114	109	31
Total ...	607,129	644,339	644,616	498,836	633,389	704,196

878. It will be observed that chicory and linseed meal are absent from the list for the last year, and jams, jellies, and preserves for the last four years. Decreased imports of agricultural products.

879. In addition to the articles named in the above table, eggs, of which it might reasonably be supposed that Victoria would produce Net import of eggs.

* See footnote (†) to preceding page.

sufficient for her own consumption, were imported in 1886 to the number of 5,837,138, and to the value of £18,995, and exported to the number of only 810,996, and the value of only £3,975, the difference in favour of the former being 5,026,142 in number, and £15,020 in value. The value of the imports of eggs in 1885 exceeded that of the exports by £10,200, in 1884 by £3,958, in 1883 by £4,871, in 1882 by £7,959, and in 1881 by £6,926.

Proportion of land under each crop.

880. Of every thousand acres cultivated during the past season, 435 acres were placed under wheat; 77 under oats; 15 under barley; 21 under potatoes; 184 under hay; 117 under green forage; and 151 under other kinds of crops. The following table shows the proportion that the land under different crops has borne to the total area under tillage during each of the last nine years:—

PROPORTION OF LAND UNDER EACH CROP TO TOTAL UNDER CULTIVATION, 1879 TO 1887.

Land under—	Proportion to Total Land under Tillage.								
	1878–9.	1879–80.	1880–81.	1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	1886–7.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
Wheat ...	42·98	41·89	48·97	50·87	47·50	49·84	47·19	42·41	43·49
Oats ...	8·35	9·93	6·72	8·07	8·32	8·49	8·08	8·98	7·67
Barley ...	1·42	2·56	3·43	2·67	2·14	2·11	2·68	3·08	1·53
Potatoes ...	2·27	2·46	2·25	2·15	1·68	1·81	1·66	1·77	2·07
Hay	10·74	11·93	12·51	11·65	15·16	13·67	14·62	17·51	18·39
Green forage ...	24·94	18·11	13·21	13·28	14·23	12·95	14·33	13·90	11·74
Other tillage ...	9·30	13·12	12·91	11·31	10·97	11·13	11·44	12·35	15·11
Total ...	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

Minor crops.

881. In addition to the principal crops of which mention has been made, various descriptions of minor crops are also raised. It is not, however, presumed that the whole of such crops, or the full measure to which they are grown, is recorded by the collectors. It is certain that they are often raised in gardens, in which case the different kinds would not be distinguished in the returns. It is also probable that they may be sometimes grown upon allotments of one acre in extent or even less, which are not taken account of. The following list must, therefore, be looked upon as indicating the nature of certain minor crops grown in Victoria rather than the extent to which those crops have been cultivated during the last six years:—

Minor Crops,* 1882 to 1887.

Nature of Crop.		1881-2.	1882-3.	1883-4.	1884-5.	1885-6.	1886-7.
Arrowroot ...	acres ...	5	7	17	6	3	...
	tons (root)	8	32	53	127	41	...
	cwt., manfd.	...	30	...	...	...	...
Artichokes ...	acres ...	...	2	2	2	...	...
	tons ...	...	16	20	20	...	...
Beet, carrots, parsnips	acres ...	286	433	424	455	388	467
	tons ...	2,737	3,281	3,874	3,872	4,304	4,411
Broom-millet...	acres ...	5	9	2	5	3	...
	fibre, cwt.	...	10	...	29	5	...
	seed, bush.	100	220	40	48	20	...
Buckwheat ...	acres ...	...	3	2	2	3	...
	bushels ...	...	65	62	58	30	...
Canary seed ...	acres ...	127	41	...	63	...	9
	bushels ...	1,241	192	...	724	...	124
Cauliflowers and cabbages	acres ...	...	...	7	7	27	114
	dozens ...	...	...	2,500	4,300	18,500	27,360
Chicory ...	acres ...	207	283	283	219	216	204
	tons ...	781	1,209	1,626	1,309	1,239	1,472
Coriander seed	acres ...	2	3	...	...	...	...
	lbs. ...	1,008	810	...	...	...	...
Durrah ...	acres ...	...	...	...	...	...	2
Fenugreek† ...	acres ...	...	1	...	...	...	...
	lbs. ...	...	300	...	...	...	...
Flax ...	acres ...	21	7	21	11	7	...
	fibre, cwt.	21	31	38	7	9	...
	linseed, bsh.	91	43	152	73	18	...
Garden seeds...	acres ...	21	14	24	45	7	43
	cwt. ...	119	43	62	74	14	215
Gooseberries ...	acres ...	...	1	...	...	3	2
	cwt. ...	...	16	...	...	28	23
Grass and clover seeds ...	acres ...	2,061	2,290	2,686	2,329	2,953	4,667
	bushels ...	32,085	28,740	41,964	35,559	39,813	61,490
Green pease ...	acres ...	21	10	...	108	92	80
	tons ...	26	25	...	36	141	98
Hops ...	acres ...	564	1,034	1,758	1,737	896	730
	lbs. ...	453,040	1,035,216	1,760,304	1,573,936	616,112	5,023
Kohl-rabi ...	acres ...	...	1	...	...	...	...
	cwt. ...	...	260	...	...	...	...
Maize ...	acres ...	1,783	2,702	2,570	3,854	4,530	4,901
	bushels ...	81,007	131,620	117,294	176,388	181,240	231,447
Mangel-wurzel	acres ...	1,044	1,087	1,056	1,413	1,346	1,257
	tons ...	14,989	16,656	18,906	21,935	24,129	19,142
Medicinal herbs	acres ...	...	...	1	...	...	3
Mulberry trees	acres ...	4	3	1	...	4	1
	number ...	...	...	1,000	...	...	...
Mustard ...	acres ...	97	81	71	61	7	20
	cwt. ...	444	379	368	287	15	100
Olives ...	acres ...	‡ 10	2	15	13	14	1
	fruit, cwt.	...	35	...	...	...	...
Onions ...	acres ...	1,134	1,341	1,235	1,750	1,740	1,996
	tons ...	10,190	8,280	6,977	11,816	10,209	11,625
Opium poppies	acres ...	4	9	6	10	16	11
	lbs. of opium	80	225	120	190	200	139

* Exclusive of those grow in gardens.

† *Fœnum græcum*, the *Trigonella* of Linnæus. ‡ Reported to have failed.

MINOR CROPS,* 1881 TO 1886—*continued.*

Nature of Crop.		1881–2.	1882–3.	1883–4.	1884–5.	1885–6.	1886–7.
Oranges and lemons	acres ...	5	...	4	2	6	2
	cases ...	...	...	...	...	...	...
Osiers ...	acres ...	4	4	...	3	5	8
	tons ...	9	2	...	3	...	5
Pease and beans	acres ...	25,937	26,832	30,443	35,288	35,460	28,672
	bushels ...	621,768	689,507	791,093	846,859	761,351	583,269
Prickly comfrey ...	acres ...	8	...	...	...	...	...
	tons ...	160	...	...	...	...	...
Pumpkins, melons, cucumbers, &c.	acres ...	81	35	44	119	153	69
	tons ...	842	370	355	837	1,447	536
Rape for seed	acres ...	...	30	14	47	...	44
	bushels ...	...	468	261	...	...	...
Raspberries ...	acres ...	155	203	235	261	271	239
	cwt. ...	3,067	4,822	4,595	6,307	6,470	4,499
Rhubarb ...	acres ...	1	9	8	8	11	20
	tons ...	1	40	43	18	31	169
Rye	acres ...	972	1,137	1,260	939	654	762
	bushels ...	12,653	23,244	16,727	15,505	8,278	11,286
Strawberries	acres ...	26	16	61	76	55	35
	cwt. ...	165	154	766	1,468	941	243
Sunflowers for seed ...	acres ...	6	6	1	2	...	6
	bushels ...	77	62	40	...	...	140
Teazles ...	acres ...	...	...	2	2	...	...
	number ...	...	...	...	4,000	...	...
Tobacco ...	acres ...	1,461	1,313	1,325	1,402	1,866	2,031
	cwt. ...	12,876	5,673	9,124	7,893	13,734	12,008
Tomatoes ...	acres ...	10	15	17	21	34	26
	cwt. ...	1,549	2,265	1,600	1,278	4,800	2,280
Turnips ...	acres ...	151	125	148	209	253	443
	tons ...	1,713	901	1,402	1,600	2,179	2,767
Vetches and tares for seed	acres ...	5	5	10	26	1	...
	bushels ...	71	83	194	700	40	...
Vines ...	acres ...	4,923	5,732	7,326	9,042	9,775	10,310
	wine, galls.	539,191	516,763	723,560	760,752	1,003,827	986,041
	brandy, „	1,453	3,377	2,646	3,623	3,875	3,233

Certain crops of which cultivation increased.

882. The table shows the cultivation of the following crops, also their produce, to have considerably increased of late years:—Beet, carrots and parsnips, cauliflowers and cabbages, grass and clover seeds, maize, onions, and vines.

Hops

883. Hops but little inferior to Kentish are grown in Victoria, and the comparative failure for several successive seasons of this crop in the United Kingdom gave a considerable stimulus to that industry, commencing about 1882–3. The maximum was reached in the following year, but in 1884–5 there was a slight decline, both in the area under

* Exclusive of those grown in gardens.

hops and the quantity produced, and a further considerable decline occurred in the two subsequent years.

884. Raspberries as a field crop are extensively grown in the more elevated parts of the colony, especially about the ranges in which the River Yarra and its tributaries have their source. The quantity returned as raised in 1886–7 was 4,499 cwt., or nearly a third less than in the previous year. Since the establishment of jam factories, the fruit is in great demand, and much more would be purchased were it forthcoming. Raspberries.

885. At a very early period of the colony's history it was the custom of the pastoral occupiers of the soil to cultivate tobacco in small quantities for the purpose of making a decoction wherein to dip their sheep for the cure of the disease called "scab." That complaint has ceased to exist amongst the Victorian flocks ; but of late years tobacco has been grown for the purpose of manufacture into an article suitable for the use of man ; 2,031 acres were placed under it in 1886–7, and the yield amounted to 12,008 cwt. Although more land was placed under tobacco than in any previous year except 1877–8, the quantity raised was exceeded in 1885–6, when 1,866 acres produced 13,734 cwt., and in 1880–81, when 1,990 acres produced 17,333 cwt. Tobacco.

886. In 1885, the tobacco crop of the United States exceeded 44 million cwt., and was the largest ever grown. The following are the exact figures, as well as those expressing the very much smaller quantities grown in several European countries :— Tobacco crop in various countries.

TOBACCO CROP IN VARIOUS COUNTRIES, 1885.

	cwt.		cwt.
United States ...	... 44,381,515	France	... 421,731
Austria Hungary	... 1,277,218	Italy	... 120,748
Russia (1881) ...	... 930,797	Holland (1884) ...	... 58,583
Germany ...	... 758,373	Turkey	... 17,553

887. The consumption of tobacco in Victoria during the last two years has been rather over 1⅔ (1·69) lbs. per head of the population, which, according to the following figures, which have been partly derived from a paper read by Dr. O. J. Broch before the Statistical Society of Paris, on the 15th June, 1887,* is a lower average than that prevailing in any of the following countries, except Russia, South Australia, Italy, and the United Kingdom. Attention is called to the very high average consumption of tobacco in Holland and the United States of America :— Consumption of tobacco in Victoria and other countries.

* See *Journal de la Société de Statistique de Paris*, vingt-huitième année, page 237; Berger-Levrault, Paris, 1887. The consumption is there given in kilogrammes which have been turned into lbs., on the assumption that 1 of the former is equal to 2·204 of the latter.

AVERAGE ANNUAL CONSUMPTION OF TOBACCO PER HEAD IN VARIOUS COUNTRIES.

	lbs.		lbs
Holland	6·92	Norway...	2·29
United States	4·40	France	2·05
Austria Hungary ...	3·77	Sweden	1·87
Denmark	3·70	Tasmania	1·85
New South Wales ...	3·53	New Zealand	1·75
Queensland	3·49	Spain	1·70
Western Australia ...	3·26	Victoria	1·69
Switzerland	3·24	United Kingdom	1·41
Belgium	3·15	Italy	1·34
Germany	3·00	South Australia	1·32
Finland...	2·73	Russia	1·23

Beet sugar.

888. Beet for the manufacture of sugar has been as yet only grown in Victoria experimentally, and upon a small scale ; but ordinary beet, mangolds, and root crops generally, which have for years past been cultivated to a considerable extent, succeed so well that there is every reason to believe sugar beet could be grown to advantage, did not the low price of sugar, consequent upon the heavy subsidies by which the industry is fostered in several European countries, prevent sugar-making from being carried on at a profit. The following statement, however, of the average quantity of beet sugar made annually in the different countries in which that product is manufactured may be useful and interesting at the present time :—

BEET-ROOT SUGAR PRODUCED IN VARIOUS COUNTRIES, 1880 TO 1884.

	Tons of Beet Sugar made annually.
Germany	656,674
Austria Hungary	470,318
France	399,471
Russia	279,436
Belgium	73,795
Holland	19,679
Other countries	9,839
Total	1,909,212

Consumption of sugar in Victoria and other countries.

889. According to the following figures, Victoria, although not consuming so much sugar per head as three of the other Australasian colonies, would appear to consume much more per head than any European country, the average quantity in 1885 and 1886 being 90¾ lbs., or nearly 22 lbs. more per head than the United Kingdom, which consumes more than twice as much per head as any country on the European Continent. It must, however, be remembered that in Victoria 14 million pounds of sugar annually, or about 14 lbs. per head, are used in the manufacture of beer, which is very much more than many countries consume altogether :—

AVERAGE ANNUAL CONSUMPTION OF SUGAR (CANE AND BEET) PER HEAD IN VARIOUS COUNTRIES.*

	lbs.		lbs.
New Zealand ...	118·77	Sweden ...	17·52
South Australia	102·11	Belgium ...	15·74
Western Australia	93·51	Germany ...	15·01
Victoria ...	90·75	Austria Hungary	13·23
Tasmania ...	90·49	Norway ...	11·37
United Kingdom	68·99	Portugal ...	9·56
Queensland ...	62·93	Roumania ...	7·71
New South Wales	60·95	Russia... ...	7·69
Demark ...	29·69	Spain	5·11
Holland ...	28·37	Servia	4·41
Switzerland ...	22·81	Italy	3·20
France ...	22·61	Finland ...	1·32

890. In 1886–7 the area under vines exceeded that returned in 1885–6 by 535 acres, and was much larger than in any previous year. The quantity of wine returned was 986,041 gallons, or less than that in 1885–6 by nearly 18,000 gallons, but much more than that in any other year. The wine industry received a temporary check some years since, in consequence of an outbreak of the disease called phylloxera vastatrix, but this was found to be confined to one district in the colony, where it was promptly stamped out by the eradication of all vines within a district around Geelong extending to distances ranging from 20 to 30 miles from that centre. Vines.

891. An account of the visitation of the phylloxera, and of the measures taken for its suppression, was originally contributed to this work, and has recently been revised to date by Mr. D. Martin, the Secretary for Agriculture :— Phylloxera vastatrix.

"The vine disease caused by the insect known as phylloxera vastatrix was discovered in the vineyards at Fyansford, three miles from Geelong, in the year 1877. It is now ascertained to have been present in this district for years before it was recognised as the dreaded phylloxera—probably for about ten years—and its origin was doubtless the importation of diseased plants.

"In order to prevent, if possible, the disease from spreading, an Act was passed providing for the appointment of inspectors of vineyards, with power to enter any lands whereon vines were growing, for the purpose of ascertaining whether the vines were infected, in which case the fact was to be reported to the Chief Secretary, who might authorize steps to be taken to eradicate the disease, either by destroying the vines or otherwise, no compensation being granted to the owner of the vines for any loss he might sustain in consequence of such measures. In 1878, thirteen vineyards, containing an area of 75 acres, were uprooted and the vines burnt; and in 1879, six vineyards, containing an area of 35 acres, were similarly treated.

"In November, 1880, a Select Committee of the Legislative Assembly was appointed to inquire into the state of the disease, and the best means of eradicating or mitigating it. The committee reported that there was no evidence to show that the insect settled on any vegetation other than vines; that so far as experiments had been tried no remedy or cure for the disease was known ; that the time most to be dreaded for the spread of the disease was about the end of December; and that there was no other cure than the entire eradication of the vines. It was recommended that a cordon, having a radius of 20 miles, should be drawn round Geelong, and that no part of the vines within that cordon, whether cuttings, leaves, fruit, or roots should be removed outside of it; that all vines

* See Dr. Broch's paper, page 233, there given in kilogrammes, each equal to 2·204 lbs.

within that cordon should be inspected, and all reported as diseased, or growing within a three-mile radius of any reported as diseased, should be uprooted and burnt, the owners being awarded a moderate compensation, based, not upon the value of the vines, but upon the estimated value of the crops for the ensuing three years. Consequently upon this report another Act was passed, repealing all former Acts relating to vines and vineyards, and providing for the proclamation of infected localities as "Vine Disease Districts," to which inspectors should be appointed, on the receipt of whose reports the Minister might order any diseased vines to be uprooted, as well as all other vines, whether diseased or not, within a radius of three miles thereof, compensation being given to the owners of diseased vines up to the value of one year's crop, and to owners of vines not diseased up to the value of three years' crops. Persons were prohibited, under a penalty not exceeding £100 or imprisonment for any term not exceeding six months, from removing from a "Vine Disease District" any vine or part of a vine. The Governor in Council was also granted power to restrict the importation of vines, vine cuttings, or grapes, and to make regulations for the purpose of carrying the Act into effect. The question, moreover, formed one of the subjects of discussion at the Intercolonial Conference, held in Melbourne, in December, 1880, when it was agreed by the colonies of New South Wales, South Australia, and Victoria, to contribute jointly to the expense of eradicating the disease.

"The *Phylloxera Vine Disease Act* 1880 was amended towards the close of 1881 by the *Geelong District Vine Disease Act* 1881, 45 Vict. No. 718 (24th December, 1881), which gave power to the Minister to order the destruction of all vines growing within the boundaries of the Geelong Vine Disease District, as described in the *Government Gazette* of the 12th January, 1881. Under the powers given by this statute all vines within the proclaimed district have been destroyed, except those in the parishes of Birregurra and Warrion. These parishes are situated at from 24 to 45 miles from where any diseased vines were growing, and consequently are not likely to be reached by the insect.

"Under the several statutes above mentioned the vines have been destroyed on about 2,000 separate properties; about half of that number being cottage properties in Geelong and suburbs; and compensation has been awarded in amounts varying from £1,042 to 1s. The disease from first to last was found in 34 properties only, comprising an estimated area of 281 acres. These diseased properties are situated in a district extending from the Leigh road to Germantown, in the valleys of the Moorabool and Barwon Rivers, a distance of about 16 miles. The last of the diseased vineyards was destroyed in 1882. The phylloxera is, however, not yet extinct. Recent examinations show that the insects are alive in several of the infected properties upon the still succulent rootlets which have been left in the ground. In some properties the roots are decayed all over, and consequently the phylloxera are dead; in the others the roots are decayed over portions of the properties only; the area of succulent roots is yearly becoming less. The proclaimed district is still retained in quarantine, special attention being given to the destruction of any vine shoots or re-growths from imperfect eradication.

"In May, 1885, a Board was appointed to inquire as to the advisability or otherwise of permitting the re-planting of vines in the Geelong district. The Board recommended that the diseased lands be trenched, the vine roots removed and burnt, and the soil disinfected. The Board's recommendations have, so far as was practicable, been carried out."

Wine crop in various countries.

892. Mainly in consequence, no doubt, of the ravages of the phylloxera, the wine crop in France has been diminishing for years past. In 1875 it reached as high as 83,836,000 hectolitres, or 1,844,000,000 gallons, but in 1885 it had fallen to 28,536,000 hectolitres, or about 628,000,000 gallons. The following are the exact figures for 1885, as well as those representing the wine crop in four other European countries during the same year :—

WINE PRODUCED IN VARIOUS COUNTRIES, 1885.

(000's omitted.)

	gallons.		gallons.
France	627,792,	Spain (exports) ...	158,070,
Italy	499,378,	Holland	81,994,
Austria Hungary ...	207,328,	United States ...	17,405,

893. The wine made in Victoria, added to that imported after deducting that exported, amounts on the average to rather over a gallon annually per head. This shows a larger consumption of wine in this colony than in the United Kingdom, where it is less than half a gallon per head, but smaller than that in Germany, Switzerland, Austria-Hungary, and France, the wine consumption in the last named of which amounts to as much as 16½ gallons per head. The following are the figures for these and some other countries :— Wine consumed in various countries.

ANNUAL CONSUMPTION OF WINE PER HEAD IN VARIOUS COUNTRIES.

	gallons.		gallons.
France	16·52	Queensland	·69
Austria Hungary ...	4·84	Holland	·49
Western Australia ...	2·52	United Kingdom ...	·43
Switzerland	2·11	United States	·37
South Australia ...	1·47	New Zealand	·27
Germany	1·32	Tasmania	·24
Victoria	1·01	Sweden	·20
New South Wales ...	·74		

894. No return is made of the nature of the crops grown or the quantity of produce raised in gardens and orchards. The following table shows the extent of land returned under this description of culture in the last two years :— Gardens and orchards.

LAND UNDER GARDENS AND ORCHARDS, 1886 AND 1887.

Year ended March.	Gardens.	Orchards.	Total.
	acres.	acres.	acres.
1886	9,461	15,934	25,395
1887	11,604	15,989	27,593
Increase	2,143	55	2,198

895. Land in fallow is included in the area under tillage. The number of acres in this condition in 1887 was 277,788, or 67,337 more than in the previous year. Land in fallow.

896. According to the returns of the past season, irrigation was being practised on a more or less extensive scale in 2 boroughs, viz., Clunes and Tarnagulla, and 24 shires, viz., Ararat, Bacchus Marsh, Beechworth, Bet Bet, Dunmunkle, Echuca, Glenelg, Gordon, Keilor, Korong, Leigh, Marong, Mount Alexander, Omeo, Oxley, Romsey, Springfield, Stawell, Strathfieldsaye, Swan Hill, Walhalla, Wodonga, Wyndham, and Yackandandah. The whole number of farms in these shires was 8,126, upon 342 of which irrigation was carried on. Certain crops in these shires covered 597,125 acres, of which 21,342 acres, or rather more than 3½ per cent., were subjected to irrigation. The following Irrigation.

table shows the extent of land under these crops, and their gross and average produce; the tillage and produce on unirrigated and on irrigated land being distinguished:—

IRRIGATION IN CERTAIN MUNICIPALITIES, 1886–7.

Crops.	In Municipalities practising Irrigation.					
	Extent under Crop on Land—		Gross Produce on Land—		Produce per Acre on Land—	
	Unirrigated.	Irrigated.	Unirrigated.	Irrigated.	Unirrigated.	Irrigated.
GRAIN CROPS.	acres.	acres.	bushels.	bushels.	bushels.	bushels.
Wheat	165,442	14,034	1,699,080	209,367	10·27	14·92
Oats	5,082	1,416	74,659	24,657	14·69	17·41
Barley—Malting	2,362	338	38,236	7,692	16·18	22·76
,, Other ...	55	11	884	300	16·07	27·27
Maize	7	1	65	20	9·29	20·00
Pease and Beans	2	3	40	85	20·00	28·33
ROOT CROPS.	acres.	acres.	tons.	tons.	tons.	tons.
Potatoes	2,855	93	10,342	451	3·62	4·85
Turnips	...	7	...	62	6·25*	8·86
Mangel-wurzel ...	8	6	48	45	6·00	7·50
Beet, Carrots, &c.	...	11	...	160	9·48*	14·55
Onions	...	1	...	2	5·82*	2·00
Chicory	...	30	...	360	7·22*	12·00
HAY, GRASS, &C.	acres.	acres.	tons.	tons.	tons.	tons.
Hay	79,344	4,633	51,649	5,883	·62	1·27
Green Forage ...	552	155	...	...	...	...
Artificial Grasses	5,811	251	...	...	...	...
OTHER TILLAGE.	acres.	acres.	cwt.	cwt.	cwt.	cwt.
Pumpkins ...	8	4	1,440	560	180·00	140·00
Tomatoes ...	...	2	...	160	80·00*	80·00
Hops	53	60	295	490	5·57	8·17
Tobacco	668	52	5,309	355	7·95	6·82
Grapes	481	56	9,185	1,455	19·10	25·98
Gardens	449	41	...	...	...	...
Orchards ...	1,367	137	...	...	...	...

Yield of irrigated and unirrigated land.

897. The scale on which irrigation has been practised in Victoria up to the present time is too small to admit of comparisons between the results obtained from land which has and which has not been irrigated being of much value. So far as the figures go, the effect of irrigation in largely increasing the yield has been most beneficial; the only cases where the irrigated land shows worse returns than the land which has not been irrigated, in 1886–7, being onions (the area under which was very small), and tobacco.

Irrigation of vines.

898. Of the grapes gathered from unirrigated vines, 7,039 cwt. were made into wine, producing 42,728 gallons; and of those gathered from

* There being no turnips, beet, carrots, &c., onions, chicory, or tomatoes returned as grown on unirrigated land in the shires in which irrigation was practised, these figures relate to other parts of the colony.

irrigated vines, 1,153 cwt. were made into wine, producing 6,922 gallons, the average being about 6 gallons to the cwt. in both instances. Thus, while irrigation is shown largely to increase the crop of grapes, the wine made from grapes grown on irrigated land appears to be no greater in quantity than that made from an equal weight of grapes grown on unirrigated land.

899. The extent of land subjected to irrigation in the year under review was half as much again as that so subjected in 1885–6, and three times as much as that so subjected in the two preceding years, the increase being chiefly under the head of cereals. The following table contains a statement of the acreage under the various crops returned as under irrigation in each of the last four years:— Irrigation, 1884 to 1887.

IRRIGATION, 1884 TO 1887.

Crops subjected to Irrigation.	Number of Acres subjected to Irrigation.			
	1883–4.	1884–5.	1885–6.	1886–7.
Wheat	4,968	3,322	8,109	14,034
Oats	94	187	502	1,416
Barley	49	41	237	349
Maize	...	19	10	1
Pease and Beans	...	3	11	3
Potatoes	30	29	22	93
Turnips	...	...	5	7
Mangel-wurzel	14	11	13	6
Beet, Carrots, &c.	...	18	15	11
Onions	...	...	...	1
Chicory	18	30	28	30
Hay	781	1,924	3,939	4,633
Green Forage	16	33	89	155
Artificial Grasses	415	1,003	206	251
Hops	398	357	254	60
Tobacco	7	...	...	52
Pumpkins	...	...	...	4
Tomatoes	...	1	2	2
Vines	103	20	...	56
Gardens and Orchards	42	48	37	178
Total	6,935	7,046	13,479	21,342

900. Towards the close of 1883, a measure* was passed with the view of promoting national irrigation on a large scale. To accomplish this object, it was provided that certain areas might, at the request of the residents, be proclaimed "Irrigation Areas," to which trusts might be appointed to carry out the irrigation scheme proposed for the district. The commissioners of these trusts were granted power, under certain Statute for promoting irrigation.

* *Victorian Water Conservation Act* 1883 (47 Vict. No. 778).

restrictions, to borrow money for the purpose of constructing the works included in the scheme, for the repayment of which a sinking fund is to be provided; also to levy rates upon all lands capable of irrigation within the area under their jurisdiction, in order to provide the annual interest on the loan and the necessary payment to the sinking fund; also to defray the current expenses attendant upon the operations of the trust.

Irrigation Act 1886.

901. This measure was repealed on the 16th December, 1886, by "an Act to make better provision for the supply of water for irrigation, and also for mining, manufacturing, and other purposes." The principal provisions of this Act, which is entitled *The Irrigation Act 1886*, have been described as follows by an officer of the Water Supply Department :—

"The Irrigation Act 1886.

"This measure repeals all previous legislation dealing with the question of irrigation, except as to acts done and irrigation trusts heretofore constituted.

"It also contains the important declaration that the right to use the waters of the rivers, streams, &c., of the colony shall be deemed to be vested in the Crown until the contrary is proven by establishing any other right.

"Provision is likewise made for the construction of 'national works' by the Government.

"National works are declared to be such by the special Act authorizing their being proceeded with. They are defined as works that, in the opinion of the Minister of Water Supply, 'are of such magnitude, affect such sources of water supply, and command such large areas of country, that it is advisable that they should be constructed by and retained under the direct control of the State.'

"Some important enlargements have been made in the powers which may be exercised by trusts under this Act as compared with those given to trusts previously constituted.

"To enable the necessary funds to be raised to carry out schemes of supply, the issue of debentures by trusts is provided for, whilst loans of Government moneys for a like purpose may, with the approval of Parliament, be granted."

Irrigation and water supply trusts constituted.

902. Up to the end of November, 1887, the following seven trusts had been constituted and were in active operation. It is stated that in every one of these cases the whole area of the trust is capable of being beneficially irrigated:—

Irrigation and Water Supply Trusts, 1887.

Name of Trust.	Area of District.	Amount of Loan authorized to be raised.
	Acres.	£
Leaghur and Meering	8,127	650
Tragowel Plains	228,453	165,000
Cohuna	89,309	17,000
Twelve-mile	9,031	3,000
Koondrook	4,028	1,700
Benjeroop and Murrabit	17,893	2,000
Swan Hill	14,300	9,000

903. Besides the irrigation trusts actually constituted, the Department of Water Supply had received applications to form trusts in the following districts. These applications were under consideration at the time of going to press:— Irrigation and water supply trusts proposed.

PROPOSED IRRIGATION AND WATER SUPPLY TRUSTS, 1887.

Name of proposed Trust.	Area of proposed Trust.		Amount of Loan proposed to be raised.
	Total.	Capable of being beneficially Irrigated.	
	Acres.	Acres.	£
North Boort	12,220	8,000 to 10,000	6,620
East Boort	29,636	29,636	14,400
Benjeroop West	6,000	5,512	3,000
Shire of Echuca	130,000	120,000	50,000
Shire of Rodney	260,000	200,000	65,000
West Wimmera	384,000	276,000	381,182
Shire of Yarrawonga	262,400	192,000	20,000
Wandella	24,500	22,700	14,000
Marquis Hill	12,500	11,700	8,000
Kerang East	18,000	15,000	12,000
Lake Charm	40,000	31,000	15,000
Pine Hills	14,000	12,000	4,000
Lower Loddon	7,000	7,000	2,000
Pyramid Hill	72,000	56,000	51,944
Emu Creek	3,700	2,466	4,631
Lower Avoca	98,000	6,000	20,000
Morrisons	5,601	500	2,000
Echuca and Waranga	270,000	70,000	207,000
Dry Lake	1,512	500	1,200

904. In 1886 the Messrs. George and W. B. Chaffey, two gentlemen, Canadians by birth, who had had considerable experience in irrigation work in the United States, visited Victoria with a view of establishing an irrigation colony therein upon an extensive scale. They submitted their proposals to the Government, which included the grant, upon certain conditions, of an extensive block of land in the Mallee country, contiguous to the River Murray. The Government looked favorably upon their undertaking, but found themselves powerless to make the concessions asked for under the then existing law. They therefore introduced a Bill into Parliament, which eventually became Chaffey irrigation scheme.

law under the title of *The Waterworks Construction Encouragement Act* 1886,* giving the required powers to the Government, but prescribing that the concessions asked for by the Messrs. Chaffey should be open to public competition for a period of two months. Tenders were invited accordingly, and the Messrs. Chaffey being the only tenderers, were, in course of time, placed in possession of the land. By the kind permission of the Messrs. Chaffey, the following interesting account of their scheme has been drawn up by Mr. J. E. M. Vincent, a gentleman attached to their firm, expressly for the *Victorian Year-Book*:—

"CHAFFEY IRRIGATION COLONY.

"The Government of Victoria, about the middle of the present year, brought to a satisfactory conclusion negotiations which had for some time been pending with Messrs. Chaffey Bros., the well known firm of irrigationists, late of Ontario, California, an irrigation colony recently established by them and named after the important province in Canada where they formerly resided, and of which they are natives. The agreement which has been entered into involves the appropriation of an extensive area of land in what is known as the Mallee country, which is situated at the western boundary of the colony, on the Murray River, and near the borders of South Australia, the Government of which colony has entered into a similar arrangement with the same firm. Messrs. Chaffey Bros., according to the terms of the deed of agreement, enter into occupation, in the first instance, of two blocks of 25,000 acres each, upon which active operations have for some time been going on, although (from unavoidable delays having taken place in completing the negotiations with the Government) the works are not so far advanced at the date of this publication as they had anticipated, and the particulars herein furnished are consequently somewhat less complete. Briefly stated, the agreement in effect embraces the grant of 250,000 acres of land and the authority to use the Murray waters in irrigating the same for the purposes of cultivation, and includes all necessary enabling powers for the carrying out of an extensive scheme of colonization, the intention of Messrs. Chaffey being to lay out the land for such cultivation, and to construct the necessary works (the pumping machinery, &c., &c.), selling the land as they proceed in blocks of from five acres and upwards, each purchaser securing a proportionate share and interest in the irrigating works and participating in the privileges with respect to the use of the water, &c., under the agreement in question. The chief cultivation which it is intended to carry on is that of fruit (grapes, oranges, &c., &c.), but a large area will be devoted to the purposes of general agricultural production. There are certain stipulations in the agreement securing the non-disturbance of the beneficial flow of the river below the points of diversion, &c.; but as there is a similar diversion to be made lower down the river with respect to the South Australian scheme, and the Government of Victoria reserve the right to grant further diversions for irrigation purposes in addition to that which will be made under their agreement with Messrs. Chaffey, it is to be justly inferred that the resources of the Murray are amply sufficient for these two diversions and others that may follow. The water right which will be secured to owners and cultivators of the land under the Chaffey scheme is practically, therefore, a perpetual one. The licence under which it is conferred is granted for a period of 25 years 'with the right of renewal of the same from time to time for successive similar periods of 25 years,' &c. Messrs. Chaffey Bros. undertake to expend £10,000 during the first twelve months, £35,000 during the first five years, £140,000 during the second five years, £75,000 during the third five years, and £50,000 during the fourth five years—a total of £300,000 in twenty years in

* 50 Vict. No. 910.

irrigation works, agriculture, horticulture, &c., and the establishment of a fruit-preserving industry, &c. Any serious breach of the conditions on the part of Messrs. Chaffey Bros. involves the annulment of the agreement on the payment by the Government of 80 per cent. on the value of the irrigation works and substantial and permanent improvements then existing upon the land resumed; but any land granted in fee-simple to Messrs. Chaffey Bros. and sold by them *bonâ fide*, or conveyed in trust for the agricultural school or college which the Chaffey Bros. undertake to establish, is exempted from resumption by the Crown. The improvements referred to are stated to include the construction and machinery of the irrigation works; the making of roads, railways, tramways, canals, water-races, drains, bridges; making and laying pipes or other conduits; clearing, fencing, preparing the ground, and planting with trees, &c.; the erection of substantial buildings, &c., &c. The carrying out of so extensive a scheme of colonization will involve the settlement upon the land of a very large number of cultivators, it not being the intention of Messrs. Chaffey to cultivate on their own account and for purposes of direct profit, but only, and to a limited extent, for experimental purposes, &c., their work being generally to co-operate in the successful and rapid development of the colony, to improve lands for sale, &c., &c. Neither is it contemplated to create a class of tenant cultivators; the lands are to be sold outright at the prices of £20 per acre for fruit growing, &c., £15 per acre for general agricultural purposes. Terms of payment extending over ten years, when desired, are allowed, 5 per cent. interest being added to the purchase money as above. As the fruit lands will take a few years to bring to profitable results, purchasers of same are offered irrigated agricultural land which will afford speedy returns, on lease, with the option of purchase, at the price of one-quarter of the produce (including water right, &c.). It is confidently anticipated, from Messrs. Chaffeys' Californian experience, and having regard also to the present productive powers of lands irrigated by the waters of the Murray, that a standard rate of yield of some 30 bushels to the acre of wheat, and, with respect to fruit, of from 1,000 to 1,500 marketable oranges per tree (in mature bearing growth and under efficient cultivation) may be steadily maintained, since the uncertainties attendant upon irregular or deficient rainfalls can here be avoided. The allotments or farms will vary in size from the minimum of 5 acres to 160 acres, which is the largest area that can be acquired direct from Messrs. Chaffey by any single purchaser. The lands which will be leased as above will only be limited in area by the cultivating abilities of the lessees. There is a large extent of land (14,000 acres) set aside for the erection, &c., of an agricultural college, which will be early proceeded with, and reserves are made for churches, schools, &c., &c. A prominent feature of the scheme is the laying out of an extensive site for a town, with numerous surrounding villa blocks each 2½ acres in extent. A broad avenue (200 feet in width), planted with several rows of trees, and running through the centre of the town, will be constructed, &c., by Messrs. Chaffey Bros. as among the earliest contributions to the list of public improvements. The colony is to bear the name of 'Mildura,' which was that attaching to the pastoral land which forms the chief part of the grant."

905. Extensive works for the storage and supply of water for domestic, mining, and irrigation purposes have been constructed by the Government in various parts of the colony. The most important of these is the Yan Yean reservoir, together with the subsidiary reservoirs at Jack's Creek, Morang, Preston, Essendon, and Caulfield, by means of which Melbourne is provided with a supply of fresh water at a high pressure. The Yan Yean is an artificial lake situated 22 miles from the city, and 595 feet above its level, which covers an area of 1,360 acres, or rather more than two square miles. To meet the increased demand for water consequent upon the growth of the city and suburbs, Reseroivrs.

a new channel has been formed for the purpose of turning into the reservoir other considerable streams of pure water, by which means all fear of the supply becoming exhausted in seasons of drought will be at an end. The following table contains a list of these works; also a statement of the estimated capacity of each work, and its actual or estimated cost. Some of these works have been completed, and others are in course of construction. It will be observed that the storage capacity of the whole is nearly thirteen thousand four hundred million gallons, and the cost over four millions sterling:—

Reservoirs in Victoria.

(Corrected to the end of 1886.)

Name of Town or District to be supplied.	Reservoir.		Actual or Estimated Cost.
	Where situated.	Storage Capacity.	
		gallons.	£
Melbourne and suburbs	Yan Yean	6,400,000,000	2,120,000
	Jack's Creek	60,000,000	
	Morang (pipe head) ...	3,000,000	
	Preston (storage) ...	15,000,000	
	Essendon (storage 1) ...	6,000,000	
	Caulfield („ 2) ...	1,000,000	
	Caulfield („) ...	10,000,000	
	Kew	3,000,000	
Coliban Scheme, including Reservoirs at—	Malmsbury	2,841,000,000	1,052,318
	Expedition Pass ...	128,000,000	
	Old Post Office Hill ...	2,000,000	
	Barker's Creek, Harcourt	611,500,000	
	Red Hill	1,250,000	
	Spring Gully	149,000,000	
	Crusoe Gully	320,000,000	
	Big Hill	68,000,000	
	Taradale (tank) ...	65,000	
	Crocodile Gully ...	5,407,462	
	Spring Gully	7,000,000	
	Solomon's Gully ...	1,250,000	
	Big Hill, Pipe Head Reservoir	300,000	
	SparrowHawk, Pipe Head Reservoir	1,500,000	
	Maldon	17,500,000	
	Blue Jacket (Parish of Huntly)	7,000,000	
	Sebastian	239,200	
	Raywood	2,500,000	
Geelong and suburbs, including Reservoirs at—	Stony Creek (Old) ...	354,000,000	360,000
	„ (New) ...	143,000,000	
	Lovely Banks... ...	6,000,000	
	Anakie (pipe head) ...	900,000	
	Newtown	500,000	

RESERVOIRS IN VICTORIA—*continued.*

Name of Town or District to be supplied.	Reservoir.		Actual or Estimated Cost.
	Where situated.	Storage Capacity.	
		gallons.	£
Creswick ...	Bullarook	45,000,000	15,449
	Ashwell's Gully ...	8,000,000	
	Adekate Creek ...	18,000,000	
Tarnagulla	Tarnagulla	8,000,000	1,430
Inglewood (Old) ...	Inglewood	5,670,000	1,112
Inglewood (New) ...	„	13,792,000	4,910
Maryborough	Maryborough	21,000,000	1,839
Beechworth	Lake Kerferd	191,360,000	46,417
Chiltern ...	Barrambogie Springs ...	4,753,869	7,594
	Railway Tank ...	6,000	345
Wangaratta	Tank at Railway Station	40,000	4,669
Rutherglen	Rutherglen	30,000,000	3,647
Ararat ...	Oliver's Gully ...	19,615,554	5,000
	Langi-Ghiran	15,200,000	40,152
	Mount Cole extension, in connexion with Langi-Ghiran	*	10,011
	Opossum Gully ...	24,621,547	2,481
Beaufort ...	Beaufort	85,881,110	1,991
	Service Reservoir, Camp Hill	1,200,000	7,583
Ballarat	Four and One Weir Basin in Bungaree	638,960,000	362,000
Carngham	Snake Valley	18,000,000	760
Clunes	Newlyn	265,000,000	81,860
Blackwood	Lerderderg River ...	64,441,237	1,090
Buninyong	Buninyong	10,462,485	1,047
Ovens	Sandy Creek	70,000,000	2,835
Indigo	Suffolk Lead	1,701,562	437
Sandhurst ...	Grassy Flat (1) ...	58,860,375	5,821
	„ (2) ...	26,769,369	
Kilmore	Kilmore	14,466,000	2,986
Myers Creek	Myers Creek	13,000,000	844
Echuca ...	Echuca (tank No. 1) ...	68,000	22,038
	„ (tank No. 2) ...	70,000	
Dunolly ...	Dunolly, Old Lead ...	17,200,000	1,912
	„ Township ...	7,500,000	3,000
St. Arnaud	St. Arnaud	50,000,000	14,677
Redbank	Redbank	27,100,000	2,785
Lamplough	Lamplough	9,261,946	1,232
Talbot ...	Amherst	13,813,284	11,193
	Evansford	182,978,781	15,500
Wedderburn	Wedderburn	3,100,000	2,578
Chewton	Commissioner's Gully ...	7,000,000	1,203
Daylesford	Wombat Creek ...	31,284,413	2,527
Moyston	Campbell's Reef ...	5,400,000	1,143
Orville	'Possum Hill	2,000,000	250
Stawell ...	Quartz Reefs ...	9,725,627	1,229
	Pleasant Creek ...	7,905,750	805
	Four Posts	3,100,000	802
	Fyan's Creek	...	115,830
	Service Reservoir ...	2,250,000	

* No reservoir (running stream).

RESERVOIRS IN VICTORIA—*continued.*

Name of Town or District to be supplied.	Reservoir.		Actual or Estimated Cost.
	Where situated.	Storage Capacity.	
		gallons.	£
Woodend	Newham	*	5,163
Great Western	Great Western Dam ...	1,211,662	489
Elaine	Lal Lal	90,000,000	†
Sebastopol	White Horse Ranges ...	4,830,904	2,862
Shire of Grenville	Linton	8,000,000	2,289
	Haddon	3,100,000	1,091
	Happy Valley... ...	2,350,995	718
	Piggoreet	600,000	79
	Kangaroo (Berringa) ...	1,000,000	171
	Cape Clear	400,000	68
	Staffordshire Reef ...	375,000	232
	Illabarook	3,069,000	408
	Rokewood Junction ...	480,000	198
	Lucky Woman's ...	125,000	43
Shire of Leigh ...	Rokewood	5,000,000	417
	Break-of-Day... ...	4,500,000	570
	Teesdale	4,000,000	530
Shire of Tullaroop ...	Chinaman's Flat ...	2,500,000	2,384
Rushworth	Rushworth	7,000,000	1,800
Homebush	Homebush	5,000,000	328
Hamilton	Hamilton	30,000,000	13,741
Melton	Melton	2,290,000	800
Barry's Reef	Barry's Reef	120,000	358
	Total	13,395,423,132	4,380,071

Leases and rental of farms.

906. The duration of leases of farms from private persons was returned in 1886–7 as averaging from 2 to 6 years; the extreme figures being 1 year and 14 years. The average rental of agricultural land per acre was stated to be from 7s. 3d. to 16s. 6d.; the extreme figures being 2s. and 40s. The average rental of pastoral land per acre was said to be from 2s. 8d. to 6s. 9d.; the extreme figures being 1s. 6d. and 20s. It may be mentioned that 3s. 6d. per annum for as much land as will carry one sheep is considered a fair rental; thus land capable of carrying two sheep to the acre ought to let for 7s. per acre per annum.

Prices of agricultural produce.

907. Each collector is required to furnish a statement of the price of the principal articles of agricultural produce in his district at the time he makes his rounds. The prices, being those prevailing in the place where the crops are grown, are generally lower than those obtaining in Melbourne, which are quoted in Part Interchange of this work. The following is an average deduced from the returns of all the districts during each of the last eighteen years:—

* No reservoir (pipe-head tank). † Cost cannot at present be given.

PRICES OF AGRICULTURAL PRODUCE, 1870 TO 1887.

During February and March.	Wheat.	Oats.	Barley.	Maize.	Hay.	Potatoes.	Turnips.	Mangolds
	per bushel.	per bushel.	per bushel.	per bushel.	per ton.	per ton.	per ton.	per ton.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
1870 ...	4 3	3 7	4 0	4 10	77	75 0	...	40 0
1871 ...	5 4	3 9	4 11	5 3	76	70 0	...	36 0
1872 ...	4 8	2 11½	3 6¼	4 2	64	65 6	...	28 1
1873 ...	4 9	3 5	4 1	3 10	81	67 4	...	24 5
1874 ...	5 9	5 6	5 3	5 9	88	118 3	...	31 4
1875 ...	4 5	4 3	4 6	4 8	89	89 0	...	28 0
1876 ...	4 7	3 3	3 10	4 8	82	87 0	...	23 8
1877 ...	5 10	3 7	3 10	4 4	93	114 0	...	31 6
1878 ...	5 1	4 6	4 4	5 4	87	115 0	...	37 3
1879 ...	4 2	3 6	4 1	4 2	75	92 4	...	25 6
1880 ...	4 0½	2 3½	4 8	3 6½	63	69 11	...	24 11
1881 ...	4 1¾	2 3	4 11¼	5 0	60	46 3	...	24 0
1882 ...	5 0	3 3	3 6	5 4	76	70 0	...	25 4
1883 ...	4 9	3 1	4 1	4 7	81	75 4	...	30 5
1884 ...	3 8	2 8	3 6	4 8	67	74 8	35 5	29 5
1885 ...	3 4	3 0	3 6	4 5	74	80 0	40 0	34 0
1886 ...	3 10	2 10	3 3	4 1	74	100 0	48 6	24 6
1887 ...	3 9	2 9	3 3	4 4	73	80 0	54 0	28 4

908. The prices of articles of agricultural produce, except potatoes, turnips, and mangolds, were generally low in 1887, as well as in the three preceding years. Wheat was lower in 1887 than in any previous year named, except 1885 and 1884; oats was lower than in any, except 1884, 1881, and 1880; barley was at the same price as in 1886, but lower than in any previous year; maize, though 3d. per bushel higher than in 1886, and the same price as in 1877, was lower than in any other year except 1880, 1879, 1873, and 1872; hay was lower than in any other year except 1884, 1881, 1880, and 1872. On the other hand, the price of potatoes and mangolds was higher than in nine out of the eighteen years, and that of turnips was higher than in any of the other years named.

Prices of agricultural produce, 1886-7 and previous years.

909. It will be observed that the price of wheat and hay was highest in 1877, that of oats, barley, maize, and potatoes in 1874, that of turnips in 1887, and that of mangolds in 1870; also that the price of wheat was lowest in 1885, that of barley in 1886 and 1887, that of oats, potatoes, hay, and mangolds in 1881, that of maize in 1880, and that of turnips in 1884.

Years of highest and lowest prices.

910. The wholesale price of wheat per Imperial quarter* in London during 1886 varied from between 29s. and 30s. in January and February to over 33s. in August and nearly 34s. in December—the

Price of wheat in London.

* The Imperial quarter is equal to 8 bushels.

average for the year being 31s. 4d. The price has fallen off considerably since 1881 and 1882, and in 1886 was remarkable as being by far the lowest during the last 125 years—no lower price having been recorded since 1761, when it was 26s. 9d.* The following statement of the average *Gazette* price (wholesale) during the seven years ended with 1885 has been taken from an official source,† and that of the average price in 1886 has been taken from the London *Statist:*—

AVERAGE PRICE PER QUARTER OF WHEAT IN LONDON.

Month.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
January ...	39 3	45 11	42 5	45 7	40 2	38 7	33 7	29 7
February ...	38 0	43 5	41 9	46 0	40 11	37 3	32 8	29 3
March ...	39 7	45 7	42 7	44 7	42 3	37 7	31 10	30 9
April ...	41 0	48 1	44 6	45 11	41 11	37 5	34 1	30 11
May ...	41 0	45 2	44 5	47 3	43 2	37 9	36 8	32 5
June ...	41 9	45 1	44 6	47 5	42 10	37 2	33 6	31 1
July ...	44 6	43 9	46 5	48 5	42 2	37 0	33 8	32 0
August ...	49 1	43 11	48 6	50 0	43 6	36 11	33 5	33 2
September ...	47 6	41 2	52 3	43 11	41 10	33 9	31 3	30 9
October ...	48 10	41 9	47 1	39 7	40 5	32 3	30 11	30 3
November ...	48 9	43 9	45 11	40 10	40 3	31 5	30 11	31 11
December ...	46 7	44 1	44 7	41 2	39 6	31 1	30 6	33 11
The Year ...	43 11	44 4	45 4	45 1	41 7	35 8	32 10	31 4

Price of wheat, barley, and oats in England.

911. Another official authority‡ gives the highest, lowest, and average *Gazette* price of wheat, barley, and oats in England and Wales as follows, during each of the ten years ended with 1885:—

AVERAGE PRICE OF WHEAT, BARLEY, AND OATS IN ENGLAND AND WALES.

Year.	Average Price per Quarter.								
	Wheat.			Barley.			Oats.		
	Highest Weekly.	Lowest Weekly.	The Year.	Highest Weekly.	Lowest Weekly.	The Year.	Highest Weekly.	Lowest Weekly.	The Year.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
1876	50 8	42 8	46 2	40 2	30 11	35 2	31 2	23 10	26 3
1877	68 9	50 1	56 9	44 2	32 5	39 8	29 0	23 4	25 11
1878	52 4	39 0	46 5	44 8	30 9	40 2	28 5	20 7	24 4
1879	50 5	37 7	43 10	43 2	24 0	34 0	26 7	19 2	21 9
1880	48 4	39 5	44 4	37 7	25 7	33 1	28 2	20 2	23 1
1881	52 2	40 9	45 4	35 8	26 11	31 11	24 6	19 5	21 9
1882	51 3	39 2	45 1	36 11	25 10	31 2	25 9	19 1	21 10
1883	43 10	39 0	41 7	35 0	25 6	31 10	24 1	19 1	21 5
1884	39 0	30 5	35 9	32 8	27 1	30 8	23 5	18 10	20 3
1885	38 1	30 2	32 10	32 6	24 10	30 2	23 6	18 1	20 7

* See Supplement to "*The Statist*" for 1886.
† Giffen's Statistical Abstract for the United Kingdom, 1871 to 1885.
‡ Report on the Agricultural Returns of Great Britain, dated September, 1886, issued from the Privy Council Office, page 140.

912. The value of the agricultural produce raised in Victoria during the year ended 1st March, 1887, may be estimated at over 7¼ millions sterling. The following table shows the means whereby such an estimate is arrived at :— Value of agricultural produce.

VALUE OF AGRICULTURAL PRODUCE,* 1886–7.

Name of Crop.	Gross Produce and Price.				Estimated Value.
		£	s.	d.	£
Wheat	12,100,036 bushels @	0	3	9	2,268,757
Oats	4,256,079 „ @	0	2	9	585,211
Barley	827,852 „ @	0	3	3	134,526
Other cereals	826,002 „ @	0	3	3	134,225
Potatoes	170,661 tons @	4	0	0	682,644
Other root crops	37,945 „ @	3	0	0	113,835
Hay	483,049 „ @	3	13	0	1,763,129
Green forage	284,186 acres @	2	10	0	710,465
Tobacco	12,008 cwt. @	2	16	0	33,622
Grapes, not made into wine ...	33,334 „ @	1	0	0	33,334
Wine	986,041 gallons @	0	4	0	197,208
Brandy	3,233 „ @	0	10	0	1,617
Hops	5,023 cwt. @	4	4	0	21,097
Other crops	5,841 acres @	5	0	0	29,205
Garden and orchard produce...	27,593 „ @	20	0	0	551,860
	Total ...			...	7,260,735

913. The standard weight of crops in Victoria is reckoned to be 60 lbs. to the bushel for wheat, 40 lbs. for oats, 50 lbs. for barley, and 56 lbs. for maize. The actual weight, however, differs in different districts. Thus wheat, during 1886–7, ranged from 57 lbs. to 65 lbs.; oats, from 37 lbs. to 48 lbs.; barley, from 40 lbs. to 56 lbs.; and maize, 48 lbs. to 60 lbs. In the same year, taking the districts as a whole, the average weight per bushel of wheat was 61 lbs.; of oats, 41 lbs.; of barley, 50 lbs.; and of maize, 57 lbs. Specific weight of crops.

914. The following figures show a slight increase in the average rates paid to married couples and females on farms in 1886–7 as compared with the previous year, but a slight decrease in most other cases. Rations are allowed in all cases in addition to the wages quoted, except in the case of threshers and hop-pickers :— Rates of agricultural labour.

* For a summary of the estimated value of agricultural produce during a series of years, see table "Value of Agricultural, Pastoral, and Mining Produce," *post*.

RATES OF AGRICULTURAL LABOUR,* 1886 AND 1887.

Description of Labour.	1885-6.	1886-7.
	s. *d.*	*s.* *d.*
Ploughmen, per week	21 7	21 4
Farm labourers, „	19 3	18 6
Married couples, „	26 1	26 10
Females, „	10 9	10 11
Mowers, „	33 7	30 0
„ per acre	5 4	5 7
Reapers, per week	35 1	31 6
„ per acre	14 2	12 5
Threshers, per bushel (without rations) ...	0 6¾	0 6½
Hop-pickers, „ „ ...	0 3½	0 3½
Maize-pickers, per bag „ ...	0 6	0 5½

Plant and improvements on farms.

915. The number and power of steam engines used on farms, and the value of farming plant and improvements, were returned as follow for the year under review and the previous one :—

STEAM ENGINES, IMPLEMENTS, AND IMPROVEMENTS ON FARMS, 1886 AND 1887.

	1885-6.	1886-7.
Steam engines, number	535	526
„ horse-power	3,990	4,059
Value of farming implements and machines...	£2,674,613	£2,667,671
„ improvements on farms ...	£16,017,098	£16,418,012

Machine labour.

916. The following figures, which have been obtained by means of averages struck from the returns of the collectors in all the districts, show the rates paid for machine labour in the last two years:—

MACHINE LABOUR, 1886 AND 1887.

Average Rates paid for—	1885-6.	1886-7.
	s. *d.*	*s.* *d.*
Machine reaping, per acre { With binding ...	9 2	8 10
Machine reaping, per acre { Without binding	4 8	4 9
„ mowing, „	4 6	4 6
„ threshing, per 100 bushels :—		
With winnowing	23 7	25 3
Without winnowing ...	17 10	16 0

Live stock, 1881 and 1887.

917. Information as to the numbers of live stock kept was obtained at the census of 1881, and since that time the figures have been brought on by estimates furnished by the municipal authorities. The following

* See also table of Wages at the end of Part Interchange *post*.

are the census numbers, and the numbers in March, 1887, as derived from the municipal estimates alluded to :—

LIVE STOCK, 1881 AND 1887.

Period.	Horses.	Cattle.			Sheep.	Pigs.
		Milch Cows.	Exclusive of Milch Cows.	Total.		
3rd April, 1881 (enumerated)	275,516	329,198	957,069	1,286,267	10,360,285	241,936
March, 1887 (estimated)	308,553	335,727	967,538	1,303,265	10,700,403	240,957
Increase ...	33,037	6,529	10,469	16,998	340,118	...
Decrease ...	...	...	...	...	...	979

Goats, asses, and mules.

918. Besides the live stock returned at the census, as shown in the table, 68,426 goats, 135 asses, and 78 mules were then enumerated. No attempt has been made to bring these numbers on to any later period.

Increase or contrary, 1887.

919. The estimates for 1887, as compared with the numbers returned at the census, show an increase in all kinds of stock except pigs, in which there was a slight falling-off. Too much reliance, however, must not be placed on any statement of the numbers of live stock, except such as is derived from the returns of a general census.

Stock per square mile.

920. Speaking roughly, there are now in Victoria 3 horses, 15 head of cattle, 122 sheep, and 3 pigs, or, taking the different kinds together, 143 head of stock of these descriptions, large and small, to the square mile.

Poultry.

921. Information respecting the numbers of poultry kept is not obtained except at the taking of a census. The following is a statement of numbers of the different kinds, according to the returns of the censuses of 1871 and 1881:—

POULTRY, 1871 AND 1881.

Year of Census.	Number of Owners of Poultry.	Geese.	Ducks.	Fowls.	Turkeys.	Pea Fowls.	Guinea Fowls.	Pheasants.	Ostriches.
1871 ..	81,347	83,025	137,355	1,636,782	69,756	970	3,542	199	16
1881 ..	97,152	92,654	181,698	2,328,521	153,078	1,701	2,307	40	..
Increase	15,805	9,629	44,343	691,739	83,322	731	..	..	..
Decrease	..	..	..	..	..	..	1,235	159	16

Increase or decrease of poultry.

922. It is seen that in ten years an increase of nearly 16,000 took place in the number of keepers of poultry, also a fair increase in all the different kinds of poultry except guinea fowls. Pheasants and ostriches, although not strictly speaking poultry, were returned in 1871, but no ostriches at the latter period; moreover, pheasants fell off in number from 199 in 1871 to 40 in 1881.

Live stock in British Possessions.

923. The live stock in the United Kingdom and any British Possessions, respecting which the information is available, is officially stated to have been as follows in the years named:—

LIVE STOCK IN BRITISH POSSESSIONS.

Possessions.	Year.	Number of—			
		Horses.	Cattle.	Sheep.	Pigs.
The United Kingdom ...	1886	1,927,527	10,872,811	28,955,240	3,497,165
Ceylon	1885	3,983	951,305	46,634	...
Mauritius	1884	12,000	15,000	30,000	30,000
Cape of Good Hope ...	1885	205,985	1,111,713	10,976,663	116,738
Natal...	1885	48,729	600,984	535,482	23,419
Canada	1881	1,059,358	3,514,989	3,048,678	1,207,619
Newfoundland ...	1884	5,436	19,884	40,326	...
Jamaica	1885	62,845	130,532	13,390	...
Australasia *	1885–6	1,327,806	8,264,994	84,222,262	1,129,851

Live stock in Foreign countries.

924. The following table contains a statement of the number of horses, cattle, sheep, and pigs in some of the principal Foreign countries. The information has been derived entirely from official documents :—

LIVE STOCK IN FOREIGN COUNTRIES (000'S OMITTED).

Country.	Year.	Number of—			
		Horses.	Cattle.	Sheep.	Pigs.
Austria	1880	1,463,	8,584,	3,841,	2,721,
Belgium	1880	272,	1,383,	365,	646,
Denmark	1881	348,	1,470,	1,549,	527,
France	1882	2,845,	11,618,	21,635,	6,260,
Germany	1883	3,522,	15,787,	19,190,	9,206,
Holland	1884	269,	1,474,	753,	427,
Italy	1882	660,	4,783,	8,596,	1,164,
Hungary	1884	1,749,	4,879,	10,595,	4,807,
Norway	1875	152,	1,017,	1,686,	101,
Russia	1882	20,016,	23,845,	47,509,	9,208,
Sweden	1884	476,	2,327,	1,410,	477,
United States	1885	12,078,	45,511,	48,322,	46,092,

* For particulars relating to each colony, see third folding sheet *ante*; also Appendix A *post*.

925. The numbers of live stock slaughtered in Victoria are furnished by the local bodies, but it is probable the returns do not in every case include the animals slaughtered by private persons, and on farms and stations, and, therefore, that more were really slaughtered than the figures show. The following were the numbers returned for 1885 and 1886, those for the latter year being larger than those for the former in the case of sheep and pigs, but smaller in the case of cattle :— Live stock slaughtered

LIVE STOCK SLAUGHTERED, 1885 AND 1886.

Year.	Cattle and Calves.	Sheep and Lambs.	Pigs.
1885	220,892	1,766,167	123,315
1886	210,775	2,252,982	124,003
Increase ...	...	486,815	688
Decrease ...	10,117	...	...

926. The purposes to which the carcasses of the slaughtered animals were appropriated in 1886 were returned as follow :— Purposes for which stock was slaughtered.

PURPOSES FOR WHICH LIVE STOCK WAS SLAUGHTERED, 1886.

Description of Live Stock.	Numbers Slaughtered for—			
	The Butcher and Private use.	Preserving or Salting.	Boiling down for Tallow or Lard.	Total.
Cattle and Calves ...	210,209	566	...	210,775
Sheep and Lambs ...	2,145,823	96,120	11,039	2,252,982
Pigs	63,842	60,161	...	124,003
Total	2,419,874	156,847	11,039	2,587,760

927. In the 10 years ended with 1885, the returns show the average number slaughtered annually for preserving and salting to have been, of cattle 1,775, of sheep and lambs 138,420, and of pigs 36,748. These numbers, as regards pigs, are below, but as regards cattle and sheep, are much above the average numbers slaughtered for the same purposes in 1886. Stock slaughtered for preserving.

928. The quantity of wool produced in Victoria during the year 1886 may be set down as 57,439,634 lbs.,* valued at £2,791,923. These figures represent the excess of exports over imports during the year, to which is added the quantity and value of wool used in woollen Wool produced, 1885 and 1886.

* The quantity of *Victorian* wool exported in 1886, according to the Customs returns, was 107,984,839 lbs., or nearly twice the total quantity given above as produced in Victoria.—(See footnote to *Wool*, Order 24, in Table of Imports and Exports, *post*.) There is no doubt, however, that, in order to obtain the higher price generally realized in England and elsewhere for Victorian wool, much wool produced outside the colony is entered at the Customs as Victorian.

mills. In the previous year, the quantity produced, similarly estimated, was 53,390,100 lbs., valued at £2,960,890.

Wool produced in Australasian colonies, 1883 to 1885.

929. The following is a statement of the quantity and value of wool produced in the various Australasian colonies in 1885 and the two preceding years. The estimate for each of the other colonies has been made upon the same principle as that for Victoria, viz., by substituting the difference between the imports and the exports for the entry as to the origin of the wool made at the Customs, to which has been added an estimate for the quantity used for manufacturing purposes in Victoria during each of the three years, but in the other colonies during 1884 and 1885 only:—

WOOL PRODUCED IN THE AUSTRALASIAN COLONIES, 1883 TO 1885.

(Excess of Exports over Imports.*)

Colony.	1883.	1884.	1885.
QUANTITY.	lbs.	lbs.	lbs.
Victoria	65,930,000	61,369,000	53,390,100
New South Wales ...	182,873,449	171,612,279	165,857,466
Queensland	43,231,606	35,525,977	42,472,071
South Australia ...	42,254,621	47,296,784	45,329,646
Western Australia ...	3,861,927	4,272,948	4,968,000
Tasmania	8,257,765	8,215,101	5,774,142
New Zealand	68,123,194	82,138,718	87,470,035
Total	414,532,562	410,430,807	405,261,460
DECLARED VALUE.	£	£	£
Victoria	4,148,500	3,879,620	2,960,890
New South Wales ...	9,470,595	8,895,543	7,122,366
Queensland	2,277,878	1,889,504	1,779,682
South Australia ...	1,745,591	1,823,431	1,411,872
Western Australia ...	225,279	249,255	248,400
Tasmania	450,367	453,567	260,480
New Zealand	3,012,171	3,342,509	3,240,630
Total	21,330,381	20,533,429	17,024,320

Wool produced in each colony.

930. It appears by the figures that Victoria, in 1885, did not produce a third as much wool as New South Wales, and did not produce so much as New Zealand by over 34 million pounds, or about two-fifths. She, however, produced over a fourth more than Queensland, and nearly a fifth more than South Australia; Western Australia, notwithstanding the immense extent of her territory, produced less than the island of Tasmania.

* The estimated quantity of wool manufactured in Victoria has also been taken into account in each of the three years, but that in the other colonies in the last two years only.

931. The figures also show that the wool produced in the Australasian colonies, in 1885, was less by about 5 million pounds than in 1884, and was also less by over 9 million pounds that in 1883; and, further, that the value of such wool was less in 1885 than in 1884 by about £3,500,000, and less than in 1883 by £4,300,000. Wool produce of three years compared.

932. The following statement of the wool produced in one year in various countries has been computed, except as regards Australasia, from figures given in the Third Annual Report of the Statistical Institute of Holland* :— Wool produced in various countries.

WOOL PRODUCED IN VARIOUS COUNTRIES.

	lbs.
Australasia (1885)	405,261,460
Russia (1878)	390,548,800
Argentine Republic (1882)	244,666,040
United States (1882)	233,073,000
United Kingdom (1882)	127,942,200
France (1879)	90,319,920
Spain (1878)	66,120,000
Germany (1881)	54,879,600
Cape Colony (1881)	42,427,000
Uruguay (1880)	41,369,080
Hungary (1880)	35,682,760
British India (1881–2)	21,400,840
Italy (1874)	21,378,800
Asiatic Turkey and Persia	13,224,000
Natal (1881)	12,496,680
Austria (1881)	10,909,800
Portugal	10,358,800
Belgium (1865)	4,408,000
British North America (1881)	3,570,480
Sweden (1870)	3,306,000
Other countries	96,976,000
Total	1,930,319,260

933. The average price per lb. of Victorian wool in 1886, based upon its declared value before leaving this colony, as obtained from the Customs returns of exports, was 11½d. as against 1s. 1⅜d. in 1885, 1s. 5¾d. in 1884, and 1s. 3⅜d. in 1883. There was thus a fall of 1⅞d. per lb. as compared with 1885, and of 6¼d. per lb. as compared with 1884. This would depreciate the wool produced in Victoria during 1886 by £436,000 as compared with a similar quantity in 1885, and by £1,453,000 as compared with a similar quantity in 1884.† Fall in price of wool.

934. In the foregoing paragraph, the price given is the average for all descriptions of wool included in the one total, so that it is possible that a variation in the quality may to a certain extent account Price of wool in Melbourne.

* See *Bijdragen van het Statistich Instituut*, Amsterdam, 1887, page 19; there given in kilogrammes, each of which has been assumed to be equal to 2·204 lbs.

† See also Part *Interchange, post*, where the export value of all wool—not Victorian wool only—is dealt with.

for the difference in the declared value. The fall in the price of wools of like quality will, however, be readily recognised by means of the figures in the following table, which have been kindly supplied for this work by Messrs. R. Goldsbrough and Co. (Limited), Melbourne :—

AVERAGE PRICE OF WOOL IN MELBOURNE, 1885 TO 1887.

Description of Wool.	Average Price per lb. during the years—		
	1884–5.	1885–6.	1886–7.
	d.	*d.*	*d.*
Greasy—			
Merino	10½	8½	10½
Crossbred	9	8	9
Fleece or washed *	20	16	17
Scoured *	19	15	18

Price of Australian wool in London.

935. The average price of Australian wool in London, as officially computed from the returns of imports by the Agricultural Department† of the Privy Council, was 2d. lower in 1885 than in the three previous years, and 4d. lower than in any other previous ones. The following are the results obtained for the 21 years ended with 1885 :—

AVERAGE PRICE OF AUSTRALIAN WOOL IN LONDON, 1865 TO 1885.

	per lb. *s.* *d.*		per lb. *s.* *d.*
1865	1 7⅜	1876	1 3¼
1866	1 8 13/16	1877	1 3
1867	1 7½	1878	1 2½
1868	1 3 5/16	1879	1 2½
1869	1 2 5/16	1880	1 2¾
1870	1 3¼	1881	1 2½
1871	1 2¼	1882	1 0½
1872	1 3	1883	1 0½
1873	1 3¼	1884	1 0½
1874	1 2¾	1885	0 10½
1875	1 4¼		

Price of wool of each Australasian colony in London.

936. The Supplement to the *Statist* (London journal) of the 5th February, 1887, gives the following quotations of the price of greasy wool produced in four of the Australasian colonies during the seven years ended with 1886. The wool is described as "good average greasy" in the case of Victoria ; "average greasy" in the case of New South Wales and South Australia ; and "superior greasy" in the case of New Zealand. The average price of "good to superior" Victorian wool is also given :—

* Comprising both merino and crossbred.

† Report dated September, 1886, page 141.

AVERAGE PRICE OF THE WOOL OF EACH AUSTRALASIAN COLONY IN LONDON, 1880 TO 1886.

Year.	Prices per lb. on 31st December.					
	Greasy Wool, the Produce of—					Good to Superior Wool, the Produce of Victoria.
	Victoria.	New South Wales.	South Australia.	New Zealand.	Australia Crossbred (Superfine).	
	d.	*d.*	*d.*	*d.*	*d.*	*d.*
1880	13	11	10	13½	14½	23½
1881	12	10½	9½	12½	14	22
1882	12½	10½	9	12½	13½	22½
1883	12½	10	9	12½	13½	22
1884	11½	9½	8	12	13½	22½
1885	9½	8	6½	10	11½	17
1886	10	8	6½	10½	12	18

937. The average prices of English wool from sheep of different breeds, and of South African wool, during the three years ended with 1885 have been published by the Agricultural Department of the Privy Council,* the former being got from the prices given weekly in the *Economist* newspaper, and the latter having been computed from the Customs returns of imports. The figures are as follow:— Price of English and Cape wool in London.

AVERAGE PRICE OF ENGLISH AND SOUTH AFRICAN WOOL IN LONDON, 1883 TO 1885.

Description of Wool.	1883.	1884.	1885.
	per lb.	per lb.	per lb.
English Leicester... ...	9 to 9½	8¾ to 9¼	8½ to 9
,, Half-breds ...	9½ ,, 10¼	9 ,, 9½	8¾ ,, 9½
,, Kent	9½ ,, 10	9 ,, 9¾	9 ,, 9½
,, Southdown ...	10¾ ,, 14	10 ,, 13½	9 ,, 12¼
South African	14¼	13½	9½

938. The prices of the leading descriptions of wool in London at the close of each of the six years ended with 1886, are thus quoted by Messrs. Helmuth, Schwartze, and Co. in the supplement to the London *Statist* of the 5th February, 1887:— Price of other wools in London.

* Report dated September 1886, page 141.

Average Price of Wool of Different Kinds in London, 1881 to 1886.

Description of Wool.	Average Price per lb. at end of—					
	1881.	1882.	1883.	1884.	1885.	1886.
	d.	*d.*	*d.*	*d.*	*d.*	*d.*
Cape, extra super. snow white ...	21	21	20½	19½	16	18
,, average fleece	12	11½	11	10½	8½	9½
Buenos Aires, average fleece ...	7	6¾	6½	6	4½	5¾
Peru, middling	11	9½	10	7¼	7	8
Donskoi, average white carding ...	9½	8¾	8	7¼	7¼	8½
East India, Ferozepore, yellow ...	10¼	9½	9	7½	7¼	6¾
Lincoln, hogs	13	10½	10¼	10¾	10	11¼
Alpaca, Islay, super. fleece ...	16½	15	16½	14½	13	12½
Mohair, Turkish, fair average ...	22	20	19	18½	15	14

Value of pastoral produce.

939. The following is an estimate of the gross value of pastoral produce raised on holdings of all descriptions in 1886–7 :—

Value of Pastoral Produce, 1886–7.

Nature of Produce.	Value.
	£
Milk, butter, and cheese, from 335,727 milch cows kept, @ £8 10s. ...	2,853,679
Estimated value of stock produced in 1886 :—	
Cattle, 335,727, viz., 223,818, @ £8, and 111,909 (calves), @ 30s.	1,958,407
Sheep, 2,675,100, @ 7s. 6d.	1,003,162
Pigs, 72,290, @ £2 10s.	180,725
Horses, 15,430, @ £8	123,440
Excess of exports over imports of wool, Customs value	2,668,063
Estimated value of wool used in the colony for manufacturing purposes, 1,651,458 lbs., @ 1s. 6d.	123,860
Total	8,911,336

Note.—The principle on which the numbers of "stock produced" have been estimated is as follows :—It has been assumed that the increase of cattle amounted to one to every milch cow, and that one-third of the calves born were slaughtered for veal, the remainder taking the place of the older cattle slaughtered. The increase of sheep has been reckoned at 25 per cent. on the total number of both sexes over six months old in the colony, that being the proportionate increase ascertained by Mr. A. J. Skene, the late Surveyor-General of Victoria, to have taken place during a series of years on nearly 3¾ millions of sheep on 34 stations situated in various parts of the colony. The increase of pigs and horses has been arbitrarily estimated at 30 and 5 per cent. respectively upon the total numbers of such stock. The value per head set down for the different kinds of stock is intended to represent the average value per head of all the stock of each kind in the colony, young and old; for although the stock born in the year would be only six months old, on the average, when the year terminated, and would, consequently, not be of so high a value as the figures indicate, yet all the growing or fattening stock may be considered to have become more valuable during the year, and the increase of bulk, and consequently of value, of such stock may fairly be set down as part of the year's produce as much as the stock actually born therein, the numbers of the latter being taken as a basis whereto such values may be applied. The quantity of wool manufactured in Victoria has been ascertained from the various woollen mills. No estimate has been made of the value of meat, tallow, lard, hides, skins, horns, hoofs, bones, &c., as this is supposed to be included in the value of stock produced.

940. Australian-killed fresh meat was delivered in London for the first time in the year 1880, when the supply consisted of 60 carcasses of beef and 555 of mutton. New Zealand fresh meat was first delivered in 1882. The following, according to the Agricultural Department of the Privy Council,* are the quantities delivered from Australasia in the five years ended with 1885 :— Australasian fresh meat in London.

AUSTRALIAN AND NEW ZEALAND-KILLED FRESH MEAT DELIVERED IN LONDON, 1881 to 1885.

	cwt.
1881	11,300
1882	34,540
1883	93,420
1884	222,560
1885	230,400

941. In the same five years the average prices of beef and mutton in London, by the carcass, are quoted as follow†:— Price of meat in London

AVERAGE WHOLESALE PRICE OF BEEF AND MUTTON IN LONDON, 1881 TO 1885.

	Beef per lb.		Mutton per lb.
1881	... 4½d. to 7¼d.	...	5d. to 9d.
1882	... 4¾d. ,, 8d.	...	5½d. ,, 9½d.
1883	... 5d. ,, 8d.	...	5¾d. ,, 9¾d.
1884	... 4¼d. ,, 7¾d.	...	5d. ,, 8¾d.
1885	... 3¾d. ,, 6¾d.	...	4¼d. ,, 7½d

942. Tame rabbits were kept in Victoria during the early years of the colony, but rabbits were first turned out upon an extensive scale by a landed proprietor in the Western district. They bred rapidly, and for several years there was a demand for specimens in most districts of the colony for breeding purposes. At that time no one seems to have thought of the nuisance they might eventually become, and of the large expenditure which would be necessary to keep down their numbers. There are now few parts of Victoria which are not infested with them, although, in consequence of the vigorous efforts which have been made by the Government, by Shire Councils, and by private individuals, to suppress the evil, there are not so many as formerly. It is found, however, that if efforts are relaxed they breed so rapidly that they soon become as numerous as ever. Some persons have advocated the introduction of animals hostile to rabbits, such as ferrets, weasels, or the mangouste (Indian ichneumon‡), but where this has been tried it has been found that the introduced animals have been so destructive to poultry that the Rabbits.

* Report dated September 1886, page 130.

† *Ibid.*, pages 136 and 137.

‡ *Herpestes mangos* of Desmarest.

rabbits were the lesser evil of the two. The most successful way of destroying rabbits has been found to be poisoning either with phosphorized oats or wheat, or with arsenic mixed with bran or chaff, or else with the fumes of bisulphide of carbon, which, being placed in their burrows, speedily effects its object if all the entrances are properly stopped. They are also largely trapped and shot, in which case, their flesh is available for food. The following account of the steps which have been taken to exterminate the rabbits has been written specially for this work by Mr. B. Brook, the officer attached to the Department of Crown Lands who is charged with the administration of the Rabbit Suppression Acts:—

Rabbit Extermination.

The first Rabbit Act came into force on 28th December, 1880. Its principal provisions are:—

Owners or occupiers are liable for destruction of rabbits on their land.

Licensees, part 2 Land Act 1869 and section 49 Land Act 1869, deemed owners.

Pastoral tenants not deemed owners or occupiers, and were exempted (altered by Act 813).

Crown liable for all unoccupied Crown land and land held under pastoral licence, but not liable to be served with notice by shire council to destroy rabbits, nor to be summoned in default of compliance (altered by Act 813).

The enforcement of the provisions of the Act (*re* the destruction of vermin on all private lands) entrusted to the shire councils with power to compel destruction of log, brushwood fencing, and stone walls when deemed to be harbour for vermin. Occupier failing to clear land after notice, council to clear and recover expenses in any court of competent jurisdiction.

The second Act No. 721 in force on 24th December, 1881, repealed section 7 of Act 683 conferred power on inpectors of the councils to serve notices and to enter and destroy (if not complied with after 14 days) and recover costs.

Under the third Act No. 813 in force 12th December, 1884:—

All licensees are owners and liable to be served with notices to destroy and be summoned in default of compliance after 14 days, shire to do the work and recover. It also places the Board of Land and Works in the same position, rendering it liable to be called upon to clear unoccupied Crown lands of rabbits, dead timber, and other harbour.

Gives power to Board of Land and Works to arrange with any shire to destroy rabbits on Crown lands on terms to be agreed upon.

Enables shires to recover expenses incurred in clearing private holdings before two justices in lieu of court of competent jurisdiction.

Authorizes shire council inspector to act on his own authority in lieu of waiting directions of shire council.

Provides that any person having a live rabbit in his possession be liable to a penalty up to £100 on conviction.

Provides that it shall be the duty of every shire council to take simultaneous action to destroy vermin on any day appointed by the Governor in Council, and continue such action till district is certified as clear. Any shire not complying may be proclaimed an infested district by Governor in Council, and a local committee appointed to attend to the matter, with power to perform all duties. Expenses not recoverable from an owner to be a debt due by council, and if not paid may be satisfied out of municipal subsidy.

Gives power to proclaim any animal a natural enemy of the rabbit and protect it.

The foregoing is a brief extract of the principal features of the present Rabbit Acts, and for further information it may be stated there are about 85 shires and boroughs in the colony of Victoria more or less infested with rabbits, but in many of them the pests have not, up to the present, increased to a sufficient extent to cause any damage. Active operations to destroy the vermin on Crown lands were not taken until towards the latter end of 1881. During the first two years the operations extended to only about 20 shires; but to such an extent had the evil spread, that it was early found imperative to extend the scope of operations, and at the present time the Department is working Crown lands in upwards of 60 shires.

The amounts expended on rabbit extermination are as follow :—

1879–80	£1,280	1883–4	£10,063
1880–81	£2,600	1884–5	£22,177
1881–2	£12,890	1885–6	£24,833
1882–3	£9,883	1886–7	£23,531*

These amounts include expenditure on labour, inspection, materials, cartage, &c., and for working unoccupied Crown lands; the administration and clerical portion of the work entail in addition a cost of less than £150 per annum.

The pest has during the past two years been largely diminished, and operations on the whole attended with marked success. The greatest obstacle in the way of effectually clearing land of the pest is found in the difficulty of enforcing simultaneous and continuous action; when once this difficulty is overcome by the whole operations being placed in the hands of the Government, with sufficient powers to enforce the working of all the infested lands at one time, the rabbits will soon be effectually destroyed, and a moderate expenditure suffice to keep them within a very small limit.

A few years ago, on one estate alone, upwards of £15,000 was expended in efforts to clear the land from the pest.

During the past ten years it is estimated that, including the expenditure of private individuals, shire councils, and the Government, loss by depreciation in grazing capabilities of land and destruction to crops, the colony has sustained a loss of about three millions by the introduction of these four-footed rodents; but the damage has been immensely reduced during the last three years, and at present is not great, though any relaxation of efforts would in two or three years result in the animals being as numerous as ever. Phosphorized wheat and oats, bran and chaff and arsenic, strychnine water, arsenic and carrots, have been amongst the most successful poisons, but where burrows abound, and can be got at, bisulphide of carbon is the most deadly and effective enemy of the rabbit, and never fails to destroy them when properly used, unless the soil be of too porous a nature to hold the gas; in this case digging out is the best remedy. In concluding, it may interest some persons who are not fully aware of the prolific nature of rabbits, to state that in three years, under favourable circumstances, two pairs of rabbits, if undisturbed in any way and sufficient food abounded, would increase to the enormous number of five millions, which fully shows the necessity that exists for continuous and vigorous action to destroy them.

Exports of rabbit skins.

943. In the ten years ended with 1886, close upon 29 millions of rabbit skins, valued at about £209,000, have been exported from Victoria. In addition to these, many have been used in the colony by hat manufacturers and others, and large numbers have doubtless been destroyed or allowed to decay. The number exported in 1886 was only about a fourth of that in 1885, which again was less by 1½ million than the number in 1884. The following are the exports of rabbit skins in the last ten years :—

* Nearly £2,500 of the amount goes toward defraying expenditure incurred in 1885-6.

EXPORTS OF RABBIT SKINS, 1877 TO 1886.

Year.	Rabbit Skins Exported.	
	Number.	Value.
		£
1877	700,565	5,790
1878	711,844	6,206
1879	1,036,372	7,322
1880	3,309,408	21,674
1881	4,473,108	32,217
1882	4,929,432	37,538
1883	4,245,596	30,364
1884	4,963,371	37,243
1885	3,424,259	23,548
1886	910,609	6,800
Total	28,704,564	208,702

Falling-off in exports of rabbit skins.

944. In explanation of the falling-off in the exports of rabbit skins in 1886 as compared with former years, Mr. Brook has submitted the the following statement:—

"The falling-off is partly owing to the large decrease in the number of rabbits, owing to the vigorous action taken under the Rabbit Suppression Act 1884, the full effects of which were not felt till 1886, and partly to the large decrease in the value of skins during the last-mentioned year. From the beginning of 1880 to the end of 1885 a high price was obtainable for good skins, but in 1886 there was a heavy drop in prices in England—the supply from the Australian colonies and New Zealand having been steadily overtaking the market; and I am informed that in 1886 fur cutters had enough on hand to supply the English trade for three years to come. Latterly, few, if any, shipments of skins from New Zealand have reached the Melbourne markets, owing to falling prices and increased facilities for shipment direct to London from New Zealand. I am not certain, but imagine that when these New Zealand skins were reshipped they were passed through the Customs as Victorian products, hence would swell the exports for 1880–85."

Rabbits sent to market in Melbourne.

945. In the twelve months ended with the 26th July, 1887, 346,856 couples of rabbits were sold, and 4,460 couples were condemned in the Melbourne fishmarket. The total number of rabbits received there in one year was thus 702,632.

Destruction of rabbits by disease.

946. At the time of going to press, experiments were in progress in South Australia upon a method of destroying rabbits by disease.* The proposition is to set free rabbits infected with the rabbit itch or scab, a complaint which results from the presence of a parasite called *sarcoptes cuniculi*. It is believed that there is no danger of the complaint being communicated to human beings or live stock; and it is even stated that infected rabbits, if trapped or shot during the earlier stages of the disease, would not be unwholesome as food, since the germs could not go into the circulation, as the bodies of the eggs are larger than the

* M. Pasteur, the eminent French physician, proposes to check the rabbit pest by the introduction of a disease slmilar to what is known as "chicken cholera." The plan he suggests is to infect the animals with the epidemic, by sprinkling a liquid containing the microbes around their burrows.

capillary vessels. It is admitted that a lengthened course of experiments would be desirable before setting at large the infected rabbits.

947. In 1887, as compared with 1886, a decrease of 14 occurred in the number of mills; and whilst the wheat operated upon increased by 426,000 bushels, and the flour made by 2,508 tons,* the other grain operated upon fell off by 103,000 bushels, and the hands employed fell off by 81. The pairs of stones were fewer by 49, but the sets of rollers in use increased by 17. A decrease of £42,097 took place in the estimated value of machinery, lands, and buildings :— Flour mills.

FLOUR MILLS, 1886 AND 1887.

Year ended March.	Number of Mills.	Mills employing—		Amount of Horse-power of Steam Engines.	Number of Pairs of Stones.	Number of sets of Rollers.
		Steam-power.	Water-power.			
1886 ...	134	130	4	3,128	441	114
1887 ...	120	112	8	2,840	392	131
Increase	...	...	4	...	...	17
Decrease	14	18	...	288	49	...

Year ended March.	Number of Hands employed.	Grain operated upon.		Flour made.	Approximate Total Value of—		
		Wheat.	Other.		Machinery and Plant.	Lands.†	Buildings.
		bushels.	bushels.	tons.*	£	£	£
1886 ...	824	7,218,805	475,997	160,507	256,170	85,126	172,870
1887 ...	743	7,644,657	373,171	163,015	240,400	67,859	163,810
Increase	...	425,852	...	2,508	...	...	...
Decrease	81	...	102,826	...	15,770	17,267	9,060

948. In 1881 the statistics were collected by the census sub-enumerators, and consequently it was possible to obtain more complete information than is supplied in ordinary years by the collectors employed by the local bodies, especially in regard to the values of materials operated upon and articles produced, which, in the case of the flour mills, were as follow :— Value of materials used and produced.

FLOUR MILLS, 1880–81.

Value of materials operated upon	...	£1,412,099
Value of articles produced ...	...	1,651,351
Increased value	...	£239,252, or 17 per cent.

* A ton of flour is considered to be equivalent to 2,000 lbs.

† The figures in this column apply to purchased lands only. One of the mills in 1886 was standing upon Crown Lands; consequently no valuation of the land has been given.

Breweries.

949. The number of breweries returned in 1887 was less by 2 than that in 1886. The hands employed in breweries in 1887, as compared with those in the previous year, increased by 62, and considerable increases took place in the sugar, malt, and hops used. The beer brewed in the year under review exceeded by $1\frac{1}{3}$ million gallons that in the previous year, and a higher value by £34,300 was set down for the machinery, plant, lands, and buildings :—

BREWERIES, 1886 AND 1887.

Year ended March.	Number of Breweries.	Breweries employing— Steam-power.	Water-power.	Gas-power.	Manual Labour only.	Amount of Horse-power of Steam Engines.	Number of Hands employed.	Materials used. Sugar.	Malt.	Hops.
								lbs.	bushels.	lbs.
1886 ...	74	47	2	1	24	472	975	13,458,144	625,598	788,178
1887 ...	72	51	2	1	18	502	1,037	14,605,024	667,478	891,294
Increase ...	...	4	...	...	...	30	62	1,146,880	41,880	103,116
Decrease	2	...	...	...	6	...	...	...	...	...

Year ended March.	Beer made.	Approximate Total Value of— Machinery and Plant.	Lands.*	Buildings.
	gallons.	£	£	£
1886	14,753,152	146,265	138,693	231,620
1887	16,088,462	140,170	198,596	212,135
Increase ...	1,335,310	...	59,903	...
Decrease ...	...	6,095	...	19,485

Value of materials used and produced.

950. The value of the sugar, malt, and hops used, and of the beer made, were returned for the census year, but not since. The following are the figures given :—

BREWERIES, 1880–81.

	£
Value of materials used	442,885
„ of beer made	780,501
Increased value	337,616, or 76 per cent.

Consumption of beer per head.

951. The beer made in Victoria during 1886–7 amounted to 16,088,462 gallons; and the quantity imported, after deducting exports, was 1,135,235 gallons. These numbers give a total consumption

* The figures in this column apply to purchased lands only. Three breweries in both years were upon Crown lands; in these cases no valuation of the land has been given.

of 17,223,697 gallons or an average of 17½ gallons per head. The beer brewed and imported, less that exported, amounted in the previous year to 15,682,526 gallons; and in 1884 to 15,332,128 gallons; or an average of 16 gallons per head in both years.

952. The following is a statement of the quantity of beer brewed in one year in the United Kingdom, four countries of Europe, and the United States :— Beer brewed in various countries.

BEER BREWED IN VARIOUS COUNTRIES* (000's OMITTED).

	gallons.		gallons.
United Kingdom (1885) ...	989,890,	Austria Hungary (1884) ...	272,624,
Holland (1884)	932,228,	Belgium (1885)	206,074,
United States (1885) ...	594,063,	France (1883)	189,618,

953. The average annual consumption of malt liquor per head in various countries may be set down as follows :— Consumption of beer in various countries

ANNUAL CONSUMPTION OF BEER PER HEAD IN VARIOUS COUNTRIES.

	gallons.		gallons.
United Kingdom	28·74	Tasmania	10·00
Germany	19·38	Switzerland	8·15
Holland	19·05	Queensland	9·55
New South Wales ...	16·70	Austria Hungary... ...	6·83
Victoria	16·41	France	4·53
United States	10·74	Sweden	2·52

954. Although the brickyards and potteries were fewer by 1 in 1887 than in 1886, the operations of those existing were considerably extended in the year under review, as the increase of hands employed was 78 and that of horse-power was 268; whilst the increased value of plant, lands, and buildings was £146,204. The number of bricks made was larger in 1887 than in the previous year by 16 millions; there was a small falling off in the value of pottery made. The following are the comparative figures of the two years :— Brickyards and potteries.

BRICKYARDS AND POTTERIES, 1886 AND 1887.

Year ended March.	Number of Brick-yards and Potteries.	Number of Machines in use.		Brickyards employing—			Amount of Horse-power of Steam Engines.	Number of Hands employed.
		For tempering or crushing Clay.	For making Bricks or Pottery.	Machines Worked by—		Manual Labour.		
				Steam.	Horses.			
1886 ...	227	216	90	52	105	70	935	2,193
1887 ...	226	225	106	58	103	65	1,203	2,271
Increase	...	9	16	6	...	...	268	78
Decrease	1	...	...	...	2	5	...	...

* Computed, in most cases, from figures given in the *Bijdragen van het Statistisch Instituut*, 1887, page 15, there stated in hectolitres, each of which has been assumed to be equal to 22 Imperial gallons.

BRICKYARDS AND POTTERIES, 1886 AND 1887—*continued.*

Year ended March.	Number of Bricks made.	Approximate Total Value of—				
		Bricks made.	Pottery made.	Machinery and Plant.	Lands.*	Buildings.
		£	£	£	£	£
1886	158,990,150	317,980	48,130	135,959	169,575	96,288
1887	174,979,670	349,960	45,400	185,369	228,662	133,995
Increase ...	15,989,520	31,980	...	49,410	59,087	37,707
Decrease ...	...	...	2,730	...	...	...

Tanneries, fellmongeries, &c.

955. The establishments for tanning and wool-washing were fewer by 12 in 1886-7 than in 1885-6, and the returns show a decrease of 254 in the hands employed, and of £20,738 in the value of plant, lands, and buildings connected with that industry. The work done was less than in the previous year; the hides and skins tanned being fewer in number by 409,427, and the wool washed less by nearly 1,000,000 lbs. The following are the particulars for the two years :—

TANNERIES, FELLMONGERIES, AND WOOL-WASHING ESTABLISHMENTS, 1886 AND 1887.

Year ended March.	Number of Establishments.	Establishments employing—					Amount of Horse-power of Steam Engines.	Number of Hands employed.	Number of Tan Pits.
		Steam-power.	Wind-power.	Water-power.	Horse-power.	Manual Labour only.			
1886	152	63	2	1	18	68	786	1,800	3,912
1887	140	66	...	1	20	53	773	1,546	3,458
Increase ...	...	3	...	...	2	...	...	...	...
Decrease ...	12	...	2	...	...	15	13	254	454

Year ended March.	Number of Hides and Skins Tanned.	Number of Skins Stripped of Wool.	Other Wool Washed.	Approximate Total Value of—		
				Machinery and Plant.	Lands.†	Buildings.
			lbs.	£	£	£
1886	2,162,900	2,233,429	11,466,859	122,622	68,483	149,616
1887	1,753,473	1,923,009	10,497,303	106,420	79,555	134,008
Increase ...	...	...	...	...	11,072	...
Decrease ...	409,427	310,420	969,556	16,202	...	15,608

* The figures in this column apply to purchased lands only. Thirty of the brickyards in 1886 and twenty-nine in 1887 were on Crown lands.

† The figures in this column apply to purchased land only. Eight of the establishments in 1886, and four in 1887 were on Crown lands. In these cases no valuation of the land is given.

956. An estimate of the value of the materials used and articles produced in tanneries, fellmongeries, and wool-washing establishments was obtained at the census of 1881, but no later information exists respecting these values. The following are the figures :— Value of materials used and produced.

TANNERIES, FELLMONGERIES, AND WOOL-WASHING ESTABLISHMENTS, 1880–81.

Value of materials used	£1,008,531
„ articles produced	1,406,274
Increased value	£397,743, or 39 per cent.

957. One woollen mill was closed in 1886–7, and the value of plant, lands, and buildings was set down as nearly £30,000 less than in the previous year. A reduction of 76 took place in the number of hands employed, and a falling off in the quantity of all descriptions of goods manufactured, except shawls, in which there was a slight increase :— Woollen mills.

WOOLLEN MILLS, 1886 AND 1887.

Year ended March.	Number of Woollen Mills.	Number of Spindles.	Horse-power of Steam Engines.	Quantity of Wool used.	Goods Manufactured : Quantity of—		
					Tweed, Cloth, Flannel, &c.	Blankets.	Shawls.
				lbs.	yards.	pairs.	number.
1886 ...	9	23,698	900	1,797,947	1,114,241	2,905	180
1887 ...	8	20,466	866	1,651,458	995,026	2,507	228
Increase ...	...	...	...	...	...	...	48
Decrease...	1	3,232	34	146,489	119,215	398	...

Year ended March.	Hands employed.		Approximate Total Value of—		
	Males.	Females.	Machinery and Plant.	Lands.	Buildings.
			£	£	£
1886	446	334	163,186	8,958	74,401
1887	387	···317	··· 146,036	7,768	63,300
Decrease ...	59	17	17,150	1,190	11,101

958. The value of the raw material used in woollen mills, and of the articles produced, was returned for the census year, but not since, the difference in favour of the manufactured articles being then £79,298. The following are the figures :— Value of articles used and produced.

WOOLLEN MILLS, 1880–81.

Value of materials used	£89,412
„ articles produced	168,710
Increased value	£79,298, or 89 per cent.

Soap and candle works.

959. The soap and candle works returned in 1887 were more numerous by 1 than those in 1886, but the hands employed were fewer by 4. The weight of soap made was greater by 5,031 cwt., and the weight of candles made was greater by 9,469 cwt. than in 1886, but the valuation placed upon the machinery, lands, and buildings was lower by £10,182 than in that year :—

SOAP AND CANDLE WORKS, 1886 AND 1887.

Year ended March.	Number of Establishments.	Establishments employing— Steam-power.	Establishments employing— Manual Labour only.	Amount of Horse-power of Steam Engines.	Number of Hands employed.	Soap made.	Candles made.	Approximate Total Value of— Machinery and Plant.	Approximate Total Value of— Lands.*	Approximate Total Value of— Buildings.
						cwt.	cwt.	£	£	£
1886 ...	33	22	11	418	412	125,578	37,245	90,873	33,121	37,242
1887 ...	34	22	12	481	408	130,609	46,714	73,358	40,976	36,720
Increase ...	1	...	1	63	...	5,031	9,469	...	7,855	...
Decrease ...	...	...	...	...	4	...	...	17,515	...	522

Value of articles used and produced.

960. The value of the raw material used, and of the articles produced, in soap and candle factories was returned for the twelve months preceding the census, with the following result. No later information exists on these points :—

SOAP AND CANDLE WORKS, 1880–81.

Value of raw materials used	£288,340
„ articles produced	450,924
Increased value	£162,584, or 56 per cent.

Tobacco manufactories.

961. Only 11 tobacco manufactories were returned in 1887, as against 12 in 1886, and the hands employed were fewer in the first than in the last named year by 42 ; there was an increase of 263,217 lbs. in the quantity of tobacco manufactured, but a decrease of 3,980 lbs. in the quantity of snuff and of 1,879,140 in the number of cigars made. The value of lands, buildings and plant in use was set down as less by £31,570 in 1887 than in 1886 :—

* The figures in this column apply to purchased land only. Two of the establishments, both in 1886 and 1887, were on Crown lands. In these cases no valuation of the land is given.

TOBACCO MANUFACTORIES, 1886 AND 1887.

Year ended March.	Number of Establishments.	Establishments employing— Steam-power.	Gas-power.	Manual Labour.	Amount of Horse-power of Steam Engines.	Number of Hands employed. Males.	Females.	Quantity of— Tobacco Manufactured.	Snuff Manufactured.	Number of Cigars Manufactured. *	Approximate Total Value of— Machinery and Plant.	Lands.	Buildings.
								lbs.	lbs.		£	£	£
1886 ..	12	4	1	7	61	497	201	918,066	6,345	9,172,600	40,645	42,900	28,965
1887 ..	11	3	1	7	43	460	196	1,181,283	2,365	7,293,460	31,225	29,200	20,515
Increase ..	..	..	..	..	..	..	..	263,217	..	..	..	..	..
Decrease ..	1	1	..	..	18	37	5	..	3,980	1,879,140	9,420	13,700	8,450

962. According to the census returns, the value of the articles produced in tobacco manufactories in 1880–81 showed an excess over that of the raw materials used of £72,870, which is equivalent to an increase of value by the process of manufacture amounting to 58 per cent. The following are the figures:— Value of raw and manufactured materials.

TOBACCO MANUFACTORIES, 1880–81.

Value of materials used	£126,450
„ articles produced	199,320
Increased value	£72,870, or 58 per cent.

963. Eight distilleries were returned in 1887, as against seven in 1886; but the hands employed were fewer by 14; and the value of plant, lands, and buildings was set down as less by £5,185 in the year under review than in the former year. An increase of £23,283 gallons, however, occurred in the quantity of spirits made. The following are the figures for the two years:— Distilleries.

DISTILLERIES, 1886 AND 1887.

Year ended March.	Number of Distilleries.	Amount of Horse-power of Steam Engines.	Number of Hands employed.	Spirits made.	Approximate Value of— Machinery and Plant.	Land.	Buildings and Improvements.
				gallons.	£	£	£
1886 ...	7	93	70	216,161	27,450	56,470	26,800
1887 ...	8	108	56	239,444	29,050	52,410	24,075
Increase ...	1	15	...	23,283	1,600	...	...
Decrease ...	...	...	14	...	...	4,060	2,725

964. According to the following figures, the consumption of spirits per head is greatest in Holland, next in Queensland, New South Wales, Western Australia, the United States, Sweden, Switzerland, New Consumption of spirits in various countries.

* In addition to cigars, 1,500,000 cigarettes were also made in 1886–7.

Zealand, and Germany in the order named. In all of these countries the consumption per head appears to be greater, whilst in France, South Australia, Tasmania, Austria-Hungary, and the United Kingdom it appears to be less than in the colony of Victoria :—

ANNUAL CONSUMPTION OF SPIRITS PER HEAD IN VARIOUS COUNTRIES.

	Gallons.		Gallons.
Holland	2·08	Germany	·95
Queensland	1·85	New Zealand ...	·92
Western Australia ...	1·46	France	·85
New South Wales ...	1·39	South Australia ...	·70
United States ...	1·34	Tasmania	·69
Sweden	1·27	Austria-Hungary ...	·63
Victoria	1·12	United Kingdom ...	·59
Switzerland... ...	1·04		

Other manufactories, works, &c.

965. The manufactories and works, exclusive of those of which mention has already been made—viz., flour mills, breweries, distilleries, brickyards, potteries, tanneries, fellmongeries, wool-washing establishments, woollen mills, soap works, candle manufactories, and tobacco manufactories—were fewer by 14 than those returned in 1886. It will be observed that the establishments employing manual labour decreased by 64, whilst there was an increase of 52 in those worked with the aid of machinery. The males employed fell off by 1,780, and the females employed by 1,413 ; but the net value of lands, buildings, and plant shows an increase of £78,959. The totals of the two years are subjoined :—

MANUFACTORIES, WORKS, ETC., 1886 AND 1887.

(Exclusive of Flour Mills, Breweries, Distilleries, Brickyards, Potteries, Tanneries, Fellmongeries Wool-washing Establishments, Woollen Mills, Soap, Candle, and Tobacco Manufactories.)

Year ended March.	Number of Manufactories, Works, &c.	Manufactories, &c., employing—						Amount of Horse-power employed.
		Steam.	Water.	Gas.	Wind	Horse-power.	Manual Labour only	
1886 ...	2,165	895	17	178	2	32	1,041	13,367
1887 ...	2,151	921	13	208	2	30	977	14,203
Increase	...	26	...	30	...	...	...	836
Decrease	14	...	4	...	...	2	64	...

Year ended March.	Number of Hands employed.		Approximate Total Value of—		
	Males.	Females.	Machinery and Plant.	Lands. *	Buildings.
			£	£	£
1886	34,325	7,220	3,660,723	2,576,083	2,266,781
1887	32,545	5,807	3,834,829	2,480,283	2,267,434
Increase ...	...	...	174,106	...	653
Decrease ...	1,780	1,413	...	95,800	...

NOTE.—Exclusive of stone-breaking and tar-pavement works, which numbered 15 in 1887, which being carried on in connexion with quarries, it is found impossible to separate them therefrom.

* In the case of establishments standing upon Crown lands no estimate of the value of the land is given. The number of such establishments was 211 in 1886, and 172 in 1887.

966. By summarizing the returns of manufactories and works of all descriptions, including not only such as are embraced in the foregoing table, but also those excluded therefrom—viz., flour mills, breweries, distilleries, brickyards, potteries, tanneries, fellmongeries, wool-washing establishments, woollen mills, soap works, candle manufactories, and tobacco manufactories—it is found that during 1886–7 the total number of establishments decreased by 43, involving a reduction of 3,524 in the number of hands employed; those establishments using steam or gas, however, increased by 50; the amount of horse-power increased by 859, and the value of machinery, lands, and buildings by £120,273. The returns of the two years are contained in the following table :— Manufactories of all descriptions.

MANUFACTORIES, WORKS, ETC., 1886 AND 1887.

(Including Flour Mills, Breweries, Distilleries, Brickyards, Potteries, Tanneries, Fellmongeries, Wool-washing Establishments, Woollen Mills, Soap, Candle, and Tobacco Manufactories, as well as all other Manufactories, Works, &c.)

Year ended March.	Total Number of Establishments.	Number of Establishments using Steam or Gas Engines.	Horse-power of Engines.	Number of Hands employed.	Approximate Value of Lands,* Buildings, Machinery, and Plant.
					£
1886	2,813	1,409	20,160	49,297	10,907,885
1887	2,770	1,459	21,019	45,773	11,028,158
Increase ...	...	50	859	...	120,273
Decrease ...	43	...	...	3,524	...

NOTE.—Exclusive of stone-breaking and tar-pavement works, which numbered 15 in 1887, which being carried on in connexion with quarries, it is found impossible to separate them therefrom.

967. The manufacturing establishments of all kinds respecting which returns are obtained are named in the following table, and their numbers are given for 1880–81 and 1886–7. For the former, which was the census year, are also given the approximate values of the materials used and articles produced, and for the latter the number of hands employed and the approximate value of lands, buildings, machinery, and plant. The establishments are for the most part of an extensive character, the only exception being in cases where the existence of industries of an unusual or interesting nature might seem to call for notice. No attempt is made to enumerate mere shops, although some manufacturing industry may be carried on thereat. Were this done, the "manufactories" in the colony might be multiplied to an almost indefinite extent. It is customary to note all establishments where machinery worked by steam, gas, water, wind, or horse-power is used. It is believed that a different system prevails in some of the neighbouring colonies, and that particulars of many establishments which, in Victoria, would not be considered worthy of notice find place in their returns :— Names of manufactories.

* In the case of establishments standing upon Crown lands no estimate of the value of the land is given. The number of such establishments was 211 in 1886, and 210 in 1887.

Manufactories, Works, etc., 1881 and 1887.

Description of Manufactory, Works, &c.	1880-81.			1886-7.		
	Number of Establishments.	Approximate Value of— Materials used.	Articles produced.	Number of Establishments.	Hands employed.	Approximate Value of Machinery, Plant, Lands, and Buildings.
Books and Stationery.		£	£			£
Account-book manufactories, manufacturing stationers	7	62,386	100,057	7	723	183,315
Printing establishments*	89	202,475	569,797	145	3,555	696,450
Musical Instruments.						
Organ-building establishments ...	2	3,500	8,050	4	31	6,700
Pianoforte manufactories	5	1,700	4,150	3	13	2,690
Carving Figures, etc.						
Statuary works	...	...	...	2	5	2,050
Designs, Medals, and Dies.						
Die-sinkers, engravers, medalists, trade-mark makers	6	3,350	9,200	6	70	15,260
Indiarubber stamp manufactories† ...	2	350	1,700	...	...	...
Type foundry	1	...	...	...	...	...
Philosophical Instruments, etc.						
Electric-lighting apparatus manufactory	...	...	...	1	...	...
Philosophical instrument manufactories	1	...	...	3	14	4,090
Surgical Instruments.						
Surgical instrument, truss—manufactories	6	2,400	5,600	4	16	7,340
Arms, Ammunition, etc.						
Blasting powder, dynamite, &c.—manufactories	3	9,964	16,737	7	75	37,570
Fuze manufactory	1	...	...	1	...	...
Shot manufactories	...	...	...	2	5	5,550
Machines, Tools, and Implements.						
Agricultural implement manufactories	54	91,659	202,535	63	948	143,937
Boiler and pipe-covering manufactories	...	...	...	1	...	...
Cutlery, tool—manufactories ...	3	800	2,400	5	23	8,960
Domestic implement‡ manufactories	2	...	...	9	64	24,165
Iron foundries and engineering establishments§	147	329,395	723,919†	154	5,699	1,013,866
Nail manufactories	...	...	...	3	22	8,000
Pattern-makers	...	...	...	5	15	6,225
Sheet-iron and tin works	61	143,000	247,299	49	776	137,740
Carriages and Harness.						
Carriage lamp manufactories ...	3	900	2,950	2	15	3,250
Coach, waggon, &c.—manufactories	132	99,415	212,615	183	2,407	290,135
Perambulator manufactories ...	3	1,750	5,000	3	13	4,310
Saddle, harness—manufactories ...	47	35,792	81,130	53	496	90,970
Saddle-tree, &c., manufactories ...	4	2,400	6,860	4	21	4,075
Whip manufactories	3	940	2,950	2	12	1,365

* Including paper-bag manufactories.
† Indiarubber stamps are now generally made by manufacturing stationers. See Books and Stationery above.
‡ Including bellows, churn, washing-machine, &c., makers.
§ Including brass-founders and pattern-makers.

MANUFACTORIES, WORKS, ETC.—*continued.*

Description of Manufactory, Works, &c.	1880-81.			1886-7.		
	Number of Establishments.	Approximate Value of—		Number of Establishments.	Hands employed.	Approximate Value of Machinery, Plant, Lands, and Buildings.
		Materials used.	Articles produced.			
SHIPS AND BOATS.		£	£			£
Ship, boat—builders	10	3,570	14,614	9	162	8,690
Ships' wheels, blocks, &c.—manufactories	3	505	1,100	1	...	...
Floating-dock	1	...	...	8	164	437,668
Graving-docks	3	...	...			
Patent slips	2	...	...			
HOUSES, BUILDINGS, ETC.						
Architectural modelling works ...	11	3,584	8,900	12	56	12,985
Patent ceiling ventilator manufactories	2	250	1,600			
Enamelled mantlepiece manufactories	...	...	..	3	29	3,620
Lime works	21	6,560	17,216	37	340	14,082
Roof-covering composition manufactories	2	944	2,180	...	...	...
Venetian blind manufactories ...	12	5,500	11,750	11	98	16,875
FURNITURE.						
Bedding, flock, and upholstery manufactories	15	13,350	26,880	22	200	49,860
Cabinet works, including billiard-table makers	63	131,000	258,188	68	1,211	182,627
Bedstead manufactory	...	...	...	1	...	...
Earth-closet manufactories ...	1	...	...	3	24	6,550
Iron-safe manufactories	2	670	970	2	15	3,660
Looking-glass manufactories ...	2	400	1,300	3	25	4,950
Picture-frame makers, &c. ...	13	5,627	11,550	6	26	10,580
Wood-carving and turnery works ...	10	4,965	10,800	16	69	14,925
CHEMICALS.						
Chemical works	6	25,160	43,600	10	151	55,630
Dye works	6	1,130	7,150	8	65	15,310
Essential oil manufactories ...	4	1,825	3,900	8	52	8,320
Ink, blacking, blue, washing-powder, &c.—manufactories	12	37,280	58,560	7	185	38,570
Ironfounders—charcoal manufactory	...	...	...	1	...	...
Japanner	...	...	...	1	...	...
Paint, varnish—manufactories ...	1	...	...	1	...	...
Printing ink manufactories ...	...	...	...	3	18	11,550
Salt works	8	4,882	10,810	8	34	3,432
TEXTILE FABRICS.						
Woollen mills	10	89,412	168,710	8	704	217,104
DRESS.						
Boot manufactories	105	355,418	686,922	92	3,574	189,028
Clothing factories	63	370,181	761,401	72	3,656	307,041
Fur manufactories	3	4,300	6,900	4	24	6,350
Hat, cap—manufactories	22	34,753	66,264	16	457	60,780
Hosiery manufactories	...	...	...	3	21	2,080
Oilskin, waterproof-clothing—manufactories	5	900	5,700	5	56	6,110
Umbrella and parasol manufactories	9	13,180	24,825	7	121	13,695
Wig manufactory	1	...	...	...	...	...

MANUFACTORIES, WORKS, ETC.—*continued.*

Description of Manufactory, Works, &c.	1880-81.			1886-7.		
	Number of Establishments.	Approximate Value of— Materials used.	Approximate Value of— Articles produced.	Number of Establishments.	Hands employed.	Approximate Value of Machinery, Plant, Lands, and Buildings.
		£	£			£
FIBROUS MATERIALS.						
Rope, twine, mat, bag, sack—manufactories	18	66,975	102,280	12	278	87,957
Sail, tent, tarpaulin—manufactories	12	28,860	47,250	9	56	18,345
ANIMAL FOOD.						
Butterine factory	1	...	...	1	...	...
Cheese factories	28	17,733	31,586	16	57	18,505
Meat-curing establishments ...	16	192,150	258,790	25	314	52,919
VEGETABLE FOOD.						
Arrowroot, maizena, oatmeal, starch—manufactories	5	5,620	8,000	1	...	...
Biscuit manufactories	13	106,110	181,840	6	588	70,500
Confectionery works	8	61,600	88,800	12	419	71,630
Flour mills	144	1,397,099	1,637,351	120	743	472,069
Jam, pickle, vinegar, sauce—manufactories	25	84,430	132,170	23	406	79,905
Macaroni works	2	125	230	1	...	...
DRINKS AND STIMULANTS.*						
Aërated waters, gingerbeer, liqueur, &c.—works	114	91,849	196,810	141	954	238,525
Breweries	81	442,885	780,501	72	1,037	550,901
Coffee, chicory, cocoa, mustard, spice—works	12	235,355	322,786	13	282	148,940
Distilleries	6	26,368	44,500	8	56	105,535
Malthouses	14	67,635	98,000	16	107	81,270
Sugar, treacle—refineries	1	...	...	2	165	207,000
Tobacco, cigars, snuff—manufactories	16	126,450	199,320	11	656	80,940
ANIMAL MATTERS.						
Boiling-down, tallow-rendering—establishments	15	28,303	77,000	16	72	22,735
Bone mills and bone manure manufactories	15	50,225	70,845	13	92	33,355
Brush manufactories	8	15,700	27,800	8	154	18,120
Comb manufactory	1	...	...	...	...	...
Catgut manufactories	2	800	2,000	1	...	...
Curled hair manufactories ...	3	1,700	2,565	1	...	...
Glue, oil—manufactories	7	8,200	12,700	4	22	5,650
Leather belting (machinery) manufactory	...	...	...	1	...	...
Morocco, fancy leather—manufactories	3	2,480	4,400	4	20	2,440
Portmanteau, trunk—manufactories	7	5,680	9,520	5	22	8,410
Soap, candle—works	38	288,340	450,924	34	408	151,054
Tanneries, fellmongeries, and wool-washing establishments	151	1,008,531	1,406,274	140	1,546	319,983

* Places where wine is made are not included. The number of wine presses returned in 1886–7 was 430.

MANUFACTORIES, WORKS, ETC.—*continued.*

Description of Manufactory, Works, &c.	1880-81.			1886-7.		
	Number of Establishments.	Approximate Value of—		Number of Establishments.	Hands employed.	Approximate Value of Machinery, Plant, Lands, and Buildings.
		Materials used.	Articles produced.			
VEGETABLE MATTERS.		£	£			£
Bark mills	8	17,000	25,650	3	18	4,180
Basket-making works	9	1,670	4,560	12	65	10,745
Broom manufactories *	2	6,200	13,000	1	...	...
Chaff-cutting, corn-crushing—works †	165	357,232	516,623	203	867	225,467
Cooperage works	24	17,829	35,243	24	134	29,535
Cork manufactories	2	2,100	3,100	1	...	...
Fancy-box, hat-box—manufactories	5	3,080	6,745	7	112	17,165
Paper manufactories	3	24,300	47,370	2	201	97,800
Saw mills, moulding, joinery, &c.—works	174	552,463	973,127	267	4,618	679,711
COAL AND LIGHTING.						
Gasworks	19	97,392	226,116	21	572	1,598,822
Electric-light works	...	...	...	1	...	...
STONE, CLAY, EARTHENWARE, AND GLASS.						
Artificial stone manufactory ...	...	...	...	1	...	...
Asbestos works	...	...	...	1	...	...
Brickyards and potteries	165	...	137,834	226	2,271	548,026
Cement tile works	...	...	...	1	...	...
Filter manufactories	1	...	...	3	12	3,180
Glass manufactories, works ...	9	12,705	41,150	5	113	22,350
Stone-breaking, asphalte, tar-pavement—works ‡	9	10,640	27,783	...	...	...
Stone and marble sawing, polishing—works	43	50,583	104,614	45	624	84,922
WATER. §						
Ice manufactories	2	2,000	7,000	3	40	33,800
GOLD, SILVER, AND PRECIOUS STONES.						
Goldsmiths, jewellers, and electro-platers (manufacturing)	28	62,020	109,650	18	305	99,375
Royal mint	1	...	...	1	...	...
METALS OTHER THAN GOLD AND SILVER.						
Bell foundry	1	...	...	...	...	...
Brass and copper foundries ...	...	...	...	17	371	85,507
Lead, pewter, and zinc—works ...	5	17,850	23,800	2	16	21,000
Pyrites works	1	...	...	1	...	...
Smelting works	7	32,396	48,610	4	94	32,750
Wire-working establishments ...	10	3,650	9,800	7	57	13,140
Total where only one return was received for each of certain descriptions ‖	...	257,910	400,080	...	274	173,910
Total	2,468	7,997,745	13,370,836	2,770	45,773	11,028,158

* See also Brush factories under "Animal Matters" *ante.*

† All these establishments used machinery worked by steam, wind, or horse power. They must not be confounded with chaff-cutting and corn-crushing machines in use on farms, which numbered about 18,500.

‡ Now included under the head of Stone Quarries—*post.*

§ Works for the storage and supply of water are not included in the manufacturing tables. A table of reservoirs follows paragraph 905 *ante.*

‖ The particulars of these have been combined, in accordance with a promise made that the contents of individual schedules would not be published.

Value of materials used and produced.

968. The difference between the value of materials used and articles produced in 1880–81, as shown by the table, indicates an increase in the value of the former by the process of manufacture of over 5⅓ millions sterling, or 67 per cent. The following are the exact figures :—

VALUE OF RAW AND MANUFACTURED MATERIALS, 1880–81.

	£
Value of materials operated upon ...	7,997,745
„ articles produced	13,370,836
Increased value	5,373,091, or 67 per cent.

Summary of manufactories at three periods.

969. By comparing the particulars respecting these manufactories, as returned in 1887 and in the first year of each of the two previous quinquennia, considerable increases at each successive period will be found in all the columns. The number of establishments increased by 8 per cent. between 1877 and 1882, and by 11 per cent. between 1881 and 1887 ; the hands employed increased by 37 per cent. and 6 per cent. in those intervals respectively ; and the value of machinery, plant, lands, and buildings increased by 33 per cent. in the first, and by 37 per cent. in the second, interval. The following is the comparison referred to :—

SUMMARY OF MANUFACTORIES, WORKS, ETC., 1877, 1882, AND 1887.

Year ended March.	Total Number of Establishments.	Number of Establishments using Steam or Gas Engines.	Horse-power of Engines.	Number of Hands employed.	Approximate Value of Lands, Buildings, Machinery, and Plant.
					£
1877 ...	2,302	918	12,771	31,478	6,025,745
1882 ...	2,488	1,146	15,033	43,209	8,044,296
1887 ...	2,770	1,459	21,019	45,773	11,028,158

Stone quarries.

970. The stone quarries, stone-crushing, and tar-pavement works returned in 1887 were fewer by 2 than in 1886, but the out-put of stone increased by 43,322 cubic yards, and the hands employed by 192. The following are the figures for the two years :—

STONE QUARRIES,* ETC., 1886 AND 1887.

Year ended March.	Number of Quarries, &c.	Cubic Yards of Stone raised.					Steam Engines in use.	
		Bluestone.	Slate and Flagging.	Sandstone and Freestone.	Granite.	Other.	Number.	Horse-power.
1886	157	488,901	1,750	11,150	860	8,537	20	352
1887	155	530,380	2,007	7,833	1,500	12,800	22	855
Increase	...	41,479	257	...	640	4,263	2	503
Decrease	2	...	...	3,317	...	...	...	...

* Including stone-crushing and tar-pavement works formerly included in the table of "Manufactories, works, &c."

STONE QUARRIES,* ETC., 1886 AND 1887—*continued.*

Year ended March.	Number of Hands employed.	Approximate Total Value of—			
		Stone raised.	Machinery and Plant.	Lands.†	Buildings.
		£	£	£	£
1886	1,266	140,724	42,617	40,597	10,330
1887	1,458	167,210	52,119	49,605	8,705
Increase	192	26,486	9,502	9,008	...
Decrease	...	...	...	...	1,625

971. According to the estimate of the Mining Department, the gold raised in Victoria in 1886 was 665,196 oz., which is less than the quantity obtained in 1885 by 70,022 oz., representing, at £4 per oz., a diminished value of £280,088. The following are the figures for the two years :— Gold raised, 1885 and 1886.

QUANTITY AND VALUE OF GOLD RAISED IN 1885 AND 1886.

Year.	Gold raised in Victoria.	
	Estimated Quantity.	Value, at £4 per oz.
	oz.	£
1885	735,218	2,940,872
1886	665,196	2,660,784
Decrease ...	70,022	280,088

972. From 1871 to 1879 the quantity of gold raised from year to year had been steadily diminishing, but in the next three years an improvement took place, which, however, was not sustained in the following four years, the yield in the last of these being less than in any other year since 1851. The subjoined figures give an estimate of the quantity of gold raised in 1871 and each subsequent year:— Gold raised, 1871 to 1886.

ESTIMATED QUANTITY OF GOLD RAISED, 1871 TO 1886.

	oz.		oz.
1871	1,355,477	1879	758,947
1872	1,282,521	1880	829,121
1873	1,241,205	1881	858,850
1874	1,155,972	1882	898,536
1875	1,095,787	1883	810,047
1876	963,760	1884	778,618
1877	809,653	1885	735,218
1878	775,272	1886	665,196

* See footnote to preceding page.

† The figures in this column apply to purchased land only. Thirty of the stone quarries in 1886 and 38 in 1887 were on Crown lands, and in these cases no valuation of the land has been given.

Gold raised, 1851 to 1886

973. Carrying on to the end of 1886 the calculations given in previous years, the following may be estimated as the total quantity and value of the gold raised in Victoria from the period of its first discovery about the middle of 1851. The figures give an average per annum during the whole period of about 1,532,000 oz., which is considerably more than twice the quantity raised in 1886:—

ESTIMATED TOTAL QUANTITY AND VALUE OF GOLD RAISED IN VICTORIA, 1851 TO 1886.

Gold raised in Victoria.	Estimated Quantity.	Value, at £4 per oz.
	oz.	£
Prior to 1886 ...	53,727,986	214,911,944
During 1886 ...	665,196	2,660,784
Total ...	54,393,182	217,572,728

Gold raised in Australasian colonies.

974. Since the first discovery, in 1851, of gold in Australasia, 81 million ounces have been raised in the various colonies, two-thirds of which was got in Victoria. The following is a statement of the quantity recorded as having been raised in the respective colonies during each year. No figures are given for Western Australia, as, although during the last year or two some gold has been raised in the Kimberley district of that colony, the authorities express themselves as unable to furnish any estimate as to its quantity :—

GOLD PRODUCE IN AUSTRALASIAN COLONIES, 1851 TO 1886.

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Tasmania.	New Zealand.
	oz.	oz.	oz.	oz.	oz.	oz.
1851	145,137	144,121	...	...	...	...
1852	2,738,484	818,752	...	...	...	...
1853	3,150,021	548,053	...	...	...	...
1854	2,392,065	237,911	...	...	...	...
1855	2,793,065	170,146	...	...	...	...
1856	2,985,735	183,946	...	...	...	...
1857	2,761,567	161,043	...	...	...	10,437
1858	2,528,227	280,558	...	...	...	13,534
1859	2,280,717	323,984	...	...	...	7,336
1860	2,156,700	381,614	4,127	...	...	4,538
1861	1,967,453	459,879	1,077	...	...	194,031
1862	1,658,281	616,910	190	...	...	410,862
1863	1,627,105	467,399	3,937	...	...	628,450
1864	1,545,437	341,954	22,037	...	...	480,171
1865	1,543,188	364,541	25,339	...	...	574,574
1866	1,478,280	287,534	22,916	...	348	735,376

GOLD PRODUCE IN AUSTRALASIAN COLONIES, 1851 TO 1886—*continued.*

Year.	Victoria.	New South Wales.	Queensland.	South Australia.	Tasmania.	New Zealand.
	oz.	oz.	oz.	oz.	oz.	oz.
1867	1,433,246	269,407	49,092	...	1,363	666,905
1868	1,634,200	258,774	165,801	...	692	637,474
1869	1,337,296	252,130	138,221	...	137	614,281
1870	1,222,798	240,402	136,773	...	964	544,880
1871	1,355,477	321,469	171,937	...	6,005	730,029
1872	1,282,521	424,100	186,019	2,494	6,969	445,370
1873	1,241,205	360,850	194,895	98	4,661	505,337
1874	1,155,972	270,710	375,586	8,351	4,651	376,388
1875	1,095,787	229,386	391,515	13,742	3,010	355,322
1876	963,760	155,166	374,776	9,857	11,107	322,016
1877	809,653	122,629	428,104	11,811	5,777	371,685
1878	775,272	117,978	310,247	10,746	25,249	310,486
1879	758,947	107,640	288,556	14,250	60,155	287,464
1880	829,121	116,751	267,136	13,246	52,595	305,248
1881	858,850	145,532	270,945	16,976	56,693	270,561
1882	898,536	129,233	224,893	15,669	49,122	251,204
1883	810,047	122,257	212,783	15,939	46,577	248,374
1884	778,618	105,933	307,804	21,455	42,340	229,946
1885	735,218	100,667	310,941	18,327	41,241	237,371
1886	665,196	98,446	340,998	26,315	31,014	227,079
Total	54,393,182	9,737,805	5,226,645	199,276	450,670	11,016,729

975. According to the above figures the total quantity of gold raised in each colony from 1851 to 1886 has been as follows :— Gold produce of Australia, 1851 to 1886.

SUMMARY OF GOLD PRODUCE OF AUSTRALASIA 1851 TO 1886.

	oz.
Victoria	54,393,182
New South Wales	9,737,805
Queensland	5,226,645
South Australia	199,276
Tasmania	450,670
New Zealand	11,016,729
	81,024,307

976. The average value of the gold raised varies in the different colonies. If it be estimated at £4 per ounce, the total value would be £324,097,228, or if at £3 15s. per ounce it would be £303,841,151. Value of gold raised in Australasia.

977. According to Mr. Mulhall,* the value of the gold produced in the different countries of the world during the 50 years ended with 1880 was as follows :— Gold produce of the world, 1830 to 1880.

* *Dictionary of Statistics*, page 220.

GOLD PRODUCE OF THE WORLD, 1830 TO 1880.

Countries.	Value of Gold raised. (000,000's omitted.)	Percentage.
	£	
Spanish America	310,	21·5
United States	286,	19·7
Australia	258,*	17·8
Russia	173,	12·0
Brazil	145,	10·0
Africa	104,	7·1
Austria	65,	4·4
Other countries	107,	7·5
Total	1,448,	100·0

Gold produce of the world, 1851 to 1885.

978. This would give an average of nearly £29,000,000 per annum, which is considerably higher than the following estimate of the world's produce of gold between the years 1851 and 1885, taken from *L'Almanach de Gotha* 1887†:—

GOLD PRODUCE OF THE WORLD, 1851 TO 1885.

		oz.		£
1851 to 1860 ...	Annual average	6,446,689	or	25,786,756
1861 to 1870 ...	„	6,108,330	„	24,433,320
1871 to 1880 ...	„	5,565,677	„	22,262,708
1881 to 1885 ...	„	4,793,690	„	19,174,760

Gold produce of the world, 1882 to 1885.

979. By the following table, which, with the exception of the figures for Australasia, has been taken from the report for 1886 of Mr. James P. Kimball, Director of the United States Mint, it appears that during the four years ended with 1885 the world's annual production of gold has averaged something under 5 million ounces, the largest quantity being produced in the United States, the next largest in Australasia, and the next in Russia:—

GOLD PRODUCE OF EACH COUNTRY, 1882 TO 1885.

Countries.	1882.	1883.	1884.	1885.
	oz.	oz.	oz.	oz.
Australasia	1,553,542	1,430,501	1,502,543	1,442,437
United States ...	1,572,199	1,451,251	1,489,928	1,537,930
Russia	1,154,603	1,154,603	1,055,452	1,225,414
Mexico	45,299	46,232	57,227	41,913
Germany	12,088	14,693	17,843	19,639

* According to an estimate made in the office of the Government Statist, Melbourne, the value of gold raised in Australia during the period named amounted to £282,980,000, or about 25 millions sterling in excess of this estimate.

† Page 1065, where only the quantities have been given, in kilogrammes, which have been converted into ounces on the assumption that a kilogramme is equal to 32·142 oz. troy. The values have been calculated at a uniform rate of £4 per oz.

GOLD PRODUCE OF EACH COUNTRY, 1882 TO 1885—*continued.*

Countries.	1882.	1883.	1884.	1885.
	oz.	oz.	oz.	oz.
Austria-Hungary ...	50,797	52,662	53,305	53,291
Sweden	547	1,190	611	611
Italy	3,504	3,504	3,504	3,504
Turkey	322	321	322	322
Argentine Republic ...	3,794	3,794	3,794	3,794
Colombia	186,534	186,534	186,534	186,488
Bolivia	3,504	3,504	3,504	3,504
Chili	7,877	7,877	7,877	16,071
Brazil	35,879	8,230	8,230	28,864
Japan	30,607	30,607	30,607	546
Africa	96,450	96,450	96,450	80,355
Venezuela	125,514	161,457	161,457	226,055
Dominion of Canada ...	52,983	46,135	46,135	34,842
Peru	5,755	5,755	5,755	7,264
The World ...	4,941,798	4,705,300	4,731,078	4,912,844

Value of the world's gold produce, 1882–1885.

980. According to the figures, the gold raised in the world during 1885, if valued at £4 per ounce, would be £19,651,376; or if at £3 15s. per ounce, it would be £18,423,165. During the four years the value of the whole quantity raised would be £77,164,080 at the former, or £72,341,325 at the latter valuation.

Silver raised in Australasian colonies.

981. Some years since, a silver mine was worked at St. Arnaud, in Victoria, but after a time it ceased to be remunerative, and the workings were abandoned. Since the establishment of a branch of the Royal Mint in Melbourne, a certain quantity of silver has been extracted annually from the crude gold lodged there for coining, and latterly the whole quantity of silver produced in Victoria has been from that source. No reliable information is obtainable of the silver produce of Queensland and South Australia, in consequence of the silver being associated with lead in those colonies,* and little or no silver has been found in Western Australia and Tasmania. The following, so far as is known, are the quantities raised in Victoria, New South Wales, and New Zealand during each of the twenty-four years ended with 1886:—

* It is known that in Queensland 2,377 tons of silver lead ore, valued at £49,922, were raised in 1885; 5,300 tons, valued at £61,963, were raised in 1884; and 10,219 tons, valued at £162,706, were raised in the previous five years; also that in South Australia 386 tons of silver lead ore, valued at £5,898, were raised in 1884; and 1,234 tons, valued at £17,451, were raised in the previous nine years.

SILVER PRODUCE IN AUSTRALASIAN COLONIES, 1863 TO 1886.

Year	Victoria.*	New South Wales.†	New Zealand.
	oz.	oz.	oz.
1863	1,098	...	...
1864	5,688	...	...
1865	3,379	...	...
1866	2,348	...	...
1867	78	...	...
1868	5,761	...	...
1869	...	753	11,063
1870	...	13,868	37,123
1871	...	71,311	80,272
1872	8,011	49,544	37,064
1873	14,347	66,997	36,187
1874	11,906	78,027	40,566
1875	21,842	52,553	29,085
1876	26,355	69,179	12,683
1877	19,717	31,409	33,893
1878	22,995	60,563	23,018
1879	23,728	83,164	20,645
1880	23,247	91,419	20,005
1881	20,957	57,254	18,885
1882	20,343	38,618	5,694
1883	22,121	77,065	16,826
1884	27,070	93,660	24,914
1885	28,951	794,174	16,624
1886	26,422	1,015,433	12,108
Total	336,364	2,744,991	476,655

Value of silver raised in Australasia.

982. The total quantity of silver raised in the three colonies, according to the table, was 3,558,010 oz., which, at 4s. per ounce, would represent a value of £711,602; or, at 3s. 6d. per ounce, would represent a value of £622,652.

Silver produce of each country.

983. The next table, with the exception of the figures for Australasia, has also been taken from Mr. Kimball's Mint report for 1886, and shows that the world's production of silver during the four years ended with 1885 was 362,543,510 oz., the largest quantity being raised in the United States, the next largest in Mexico, and the next in Bolivia:—

* In Victoria, nearly all the silver produced of late years has been extracted from crude gold left at the Mint for coining.

† Exclusive of silver obtained in the form of silver-lead ore, of which 4,802 tons, valued at £294,485, was raised in 1886; 2,286 tons, valued at £84,541, in 1885; 9,167 tons, valued at £214,940, in 1884; and 339 tons, valued at £7,460, in the eight previous years.

SILVER PRODUCE* OF EACH COUNTRY, 1882 TO 1885.

Countries.	1882.	1883.	1884.	1885.
	oz.	oz.	oz.	oz.
Australasia	64,655	116,012	145,644	839,749
United States ...	36,203,568	35,733,343	37,750,691	39,906,800
Russia	250,159	250,159	300,152	499,937
Mexico	22,617,782	22,869,806	21,086,156	24,834,850
Germany	6,911,671	7,416,812	7,976,897	7,403,566
Austria-Hungary ...	1,514,844	1,565,962	1,588,982	1,588,586
Sweden	48,225	50,893	58,384	58,370
Norway	189,460	181,487	205,342	215,290
Italy	13,889	13,889	13,889	13,885
Spain	2,395,175	2,395,175	114,518	114,490
Turkey	69,573	69,573	69,573	69,555
Argenine Republic ...	325,004	325,004	325,004	324,923
Colombia	587,798	587,798	587,798	587,748
Bolivia	8,509,366	12,377,268	12,377,268	12,372,087
Chili	4,118,608	4,118,608	4,118,608	5,142,720
Japan	679,040	679,040	679,040	742,127
Dominion of Canada ...	52,758	52,758	52,758	...
France	459,456	204,345	204,345	189,797
Peru	1,475,974	1,475,974	1,475,974	1,537,096
The World† ...	86,487,005	90,483,906	89,131,023	96,441,576

Value of the world's silver produce, 1882–1885.

984. At 4s. per ounce, the quantity of silver raised in the world during 1885 would be worth £19,288,315; or, at 3s. 6d. per ounce, it would be worth £16,877,276. The quantity raised in the four years ended with 1885 would be worth £72,508,702 at the former, or £63,445,114 at the latter valuation.

Gold derived from alluvial and quartz workings.

985. Of the gold which was raised in Victoria during 1886, 416,840 oz. was obtained from quartz reefs, and 248,356 oz. from alluvial deposits. These figures, as compared with those for the previous year, show a decrease of 36,560 oz. in the yield of quartz reefs, and of 33,462 oz. in that of alluvial workings. The respective proportions of quartz and alluvial gold raised were 62 and 38 per cent. in 1885, and 63 and 37 per cent. in 1886.

Value of gold per miner.

986. The value of gold raised in Victoria in proportion to the number of miners at work‡ fell to its lowest point in 1879, when it only amounted to £76 1s. 2d. per head; but since then it went on increasing until 1885, when it reached to £108 15s. 9d. per head. In 1886 the

* See U.S. Mint Report, 1886, pages 168 and 169, where the quantities are given in kilogrammes, which have been converted into ounces on the assumption that a kilogramme is equal to 32·142 oz. troy.

† British India, which, according to another authority, produced silver to the value of £914,367 in 1883, does not appear to be included.

‡ For the number of gold miners at work in 1886, see paragraph 120 *ante*.

average was £3 5s. 2½d. less than in the previous year. The following figures, which have been calculated from the figures supplied by the Secretary for Mines, express this proportion for the last sixteen years:—

VALUE OF GOLD PER MINER,* 1871 TO 1886.

	£	s.	d.		£	s.	d.
1871	93	6	1½	1879	76	1	2¼
1872	93	17	1½	1880	81	18	11¾
1873	93	16	2½	1881	95	11	9½
1874	99	8	3	1882	95	19	7¾
1875	104	4	4	1883	95	6	3½
1876	89	19	6¾	1884	106	14	6¼
1877	82	6	1¾	1885	108	15	9¼
1878	82	12	11½	1886	105	10	6¾

Value of gold per alluvial and quartz miner.

987. In proportion to the number of miners engaged in alluvial and quartz mining, the yield of gold from the latter has frequently been more than twice as large as that from the former. The following are the figures for the last ten years:—

VALUE OF GOLD PER ALLUVIAL AND QUARTZ MINER, 1877 TO 1886.

	Alluvial Miners.			Quartz Miners.			
	£	s.	d.		£	s.	d.
1877	47	8	0¼	...	139	12	0¼
1878	47	3	6¾	...	138	7	7¼
1879	48	10	1½	...	118	8	7
1880	49	14	2	...	129	11	7¾
1881	62	0	9¾	...	141	19	2½
1882	68	14	1½	...	131	19	5½
1883	66	4	4	...	132	13	2
1884	76	4	2	...	144	9	10
1885	75	17	2	...	148	19	11
1886	72	11	2½	...	144	13	11½

Estimated gold yield, 1887.

988. The estimated yield of gold in the first half of 1887 was 291,237 oz., as against 322,199 oz. in the first half of 1886.† Twice the first quoted amount would give 582,474 oz. as the estimate for the whole of 1887, or 82,722 oz. less than the quantity actually raised in 1886, and 132,072 oz. less than the quantity raised in 1875.

Dividends of gold mining companies.

989. Exclusive of dividends paid by a few private companies, respecting which the Mining Department were unable to obtain information, the following are the amounts of dividends paid by gold

* These amounts are sometimes incorrectly spoken of as the "average earnings" of the miners. It has been pointed out on former occasions that, as a very large proportion of the miners are working on wages, the gold they raise no more represents their individual earnings than do the products of a manufactory represent the earnings of its operatives. For wages of miners, see Part Interchange *post*.

† See "Mining Registrars' Reports" for first two quarters of 1887.

mining companies in Victoria, in the last two quarters of 1886 and the first two quarters of 1887 :—

DIVIDENDS OF GOLD MINING COMPANIES, 1886–7.

Quarter ended September, 1886	... ...	£138,190
„ December, 1886	... ...	130,265
„ March, 1887	... ...	104,397
„ June, 1887	... ...	95,267
Total in 12 months	... ...	£468,119

990. Of the steam engines employed in connexion with gold mining, about a fifth are used on alluvial and four-fifths on quartz workings. The following is the number of engines in use and their horse-power in each of the last thirteen years :— Steam engines used in mining.

STEAM ENGINES USED IN GOLD MINING, 1874 TO 1886.

	Number.	Horse-power.
1874	1,141 ...	24,866
1875	1,101 ...	24,224
1876	1,081 ...	23,947
1877	1,067 ...	23,416
1878	1,036 ...	22,711
1879	1,024 ...	22,509
1880	1,030 ...	22,499
1881	1,034 ...	23,379
1882	1,074 ...	24,692
1883	1,087 ...	25,933
1884	1,104 ...	26,228
1885	1,085 ...	26,627
1886	1,072 ...	26,920

991. The value of gold mining machines of all descriptions, as estimated by the Department of Mines, decreased from £1,837,452 in 1885 to £1,797,925 in 1886. In the latter year, the value of them used in quartz mining was £1,477,796, whilst that of those used in alluvial mining was only £320,129. Mining machinery.

992. The number of quartz reefs proved to be auriferous, as returned by the mining surveyors and registrars, was 3,793 in 1885, and 3,831 in 1886. It has been pointed out, however, that these cannot in every case be distinct reefs, as parts of the same reef in different localities are held to be independent veins, and named accordingly ; and, moreover, as the lines of reef are further explored, it is found that what were supposed to be separate reefs are in reality not distinct. Auriferous reefs.

993. The approximate area of auriferous ground worked upon during the last quarter of 1886 was stated to be 316 square miles. The figures Extent of auriferous ground.

are derived from estimates, not from actual surveys, and they vary from year to year. As the different gold-workings are abandoned by the miners, they are excluded from the returns, which only take into account the ground on which gold mining operations are actually being carried on.

Average yield of quartz.

994. It is impossible to obtain an exact statement of the yield of auriferous quartz in any year, owing to the fact that many of the owners of machines for crushing quartz are unable to give, or are precluded from giving, information respecting their operations. The officers of the Mining Department, however, succeeded in obtaining particulars respecting the crushing of 843,251 tons in 1885, and 831,375 tons in 1886. The average yield per ton of these crushings was 10 dwt. 1·28 gr. in the former, and 9 dwt. 10·31 gr. in the latter, year. From similar estimates, extending over the last ten years, and embodying information respecting the crushing of more than 9,000,000 tons of quartz, an average is obtained of about 9 dwt. 11 gr. of gold to the ton of quartz crushed.

Gold from various matrices.

995. The following is the estimate of the Mining Department* of the gross and average yield of nearly 38 millons of tons of the various minerals and drifts from which gold is obtained in Victoria. The quantity of gold included in the estimate is about a fourth of the total yield of the Victorian goldfields from the period of the first gold discoveries to the end of 1886:—

GOLD FROM VARIOUS MATRICES.

Matrix.	Quantity treated.	Yield of Gold.	
		Total.	Average per ton.
From Quartz Reefs.	tons.	oz.	oz. dwt. gr.
Quartz	22,606,202	11,866,544	0 10 11·96
Tailings and mullock ...	2,097,016	338,941	0 3 5·58
Pyrites	114,823	242,254	2 2 4·70
From Alluvial Workings.			
Washdirt	12,556,834	916,113	0 1 11·02
Cement	373,819	86,958	0 4 15·65
Total	37,748,694	13,450,810	0 7 3·04

* *Mineral Statistics* 1886, Statement No. 6.

† See Reports of Mining Registrars for the Quarter ended 30th June 1887, page 6.

Deep shafts.

996. The ten deepest shafts in the colony * are those of the Magdala (now Moonlight) Company, Stawell, 2,409 feet; Victory and Pandora, Sandhurst, 2,100 feet; Lansell's 180 mine, Sandhurst, 2,040 feet; Great Extended Hustler's Company, Sandhurst, 2,020 feet; Newington Company, Pleasant Creek, 1,940 feet (not working); Victoria Reef Quartz Company, Sandhurst, 1,910 feet; North Old Chum Company, Sandhurst, 1,891 feet; Unity Company, Sandhurst, 1,882 feet; New Chum and Victoria Company, Sandhurst, 1,882 feet; and Prince Patrick Company, Pleasant Creek, 1,830 feet (not working). It thus appears that the greatest depth to which the earth's crust has been pierced in this colony is a little over 2,400 feet. This, however, as is pointed out by the Secretary for Mines, is little more than half the depth of a bore which has been put down by the Prussian Government in search for coal at Schladebach, near Leipsic, the bore in question being the deepest in the world, viz., 4,560 feet.*

Gold-mining leases.

997. Since the first issue of gold-mining leases, the total number granted has been 15,018, giving the right to mine over an area amounting in the aggregate to 280,852 acres. Of these leases, 385, for 7,640 acres, were granted in 1886, and 1,278, for 22,809 acres, were in force at the end of that year.

Minerals other than gold existing in Victoria.

998. Silver, tin, copper, antimony, lead, and iron have been mined for at different times in Victoria, but, with the exception of a little tin and some copper, none of these ores were raised in 1886. The silver obtained in that year was, as has already been stated, extracted at the mint during the process of refining the gold. Many attempts have been made to mine for coal, but the seams hitherto worked have been too thin to yield a profit; thicker seams, however, have been discovered at the Moe and at Mirboo, in Gippsland, and it is anticipated that valuable coal-fields will be opened up in those places. The following metals also exist in Victoria, but up to this date have not been discovered in paying quantities:—Bismuth, cobalt, cadmium, manganese, molybdenite, osmiridum, and zinc-blende. Various limestones and marbles, as well as kaolin and other clays, also exist, and have been worked to a certain extent.

Coal raised in Australasian colonies.

999. At the present time, the coal-producing colonies of Australasia are New South Wales, Queensland, Tasmania, and New Zealand.† In these 3,603,575 tons of coal were raised in 1886, but four-fifths of this quantity came from New South Wales. The following are the

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* See Reports of Mining Registrars for the Quarter ended 30th June, 1887, page 6.

† Only 13,153 tons of coal have been raised from Crown lands in Victoria up to the present time. Some coal has also been got from private lands, but no particulars have been supplied as to the quantity.

quantities returned as brought to the surface in each of those colonies during a series of years :—

COAL RAISED IN AUSTRALASIAN COLONIES, 1876 TO 1886.

Year.	Tons of Coal raised in—			
	New South Wales.	Queensland.	Tasmania.	New Zealand.
1876	1,319,918	50,627	6,100	...
1877	1,444,271	60,918	9,470	...
1878	1,575,497	52,580	12,311	162,218
1879	1,583,381	55,012	9,514	231,218
1880	1,466,180	58,052	12,219	299,923
1881	1,769,597	65,612	11,163	337,262
1882	2,109,282	74,436	8,803	378,272
1883	2,521,457	104,269	8,872	421,764
1884	2,749,109	129,980	7,194	480,831
1885	2,878,863	209,698	5,334	511,063
1886	2,830,175	228,656	10,391	534,353

Coal raised in various countries.

1000. The following is a statement of the quantity of coal raised in various countries during one year, the returns being generally those for 1882 :—

PRODUCTION OF COAL IN VARIOUS COUNTRIES, 1882.

	Tons.
United Kingdom	156,499,977
United States	86,230,151
Germany	64,309,629
France	20,468,878
Belguim	17,218,650
Austria	15,305,215
Australasia (1885)	3,604,958
Russia	3,542,122
China	2,951,768
Hungary and Croatia	2,066 238
British North America	1,413.897
Spain	1,152,174
British India	997,393
Chili	787,138
Japan	521,479
Italy (1880)	137,749
Sweden	137,749
Turkey in Asia	108,232
Portugal	19,678
Switzerland	18,695
Other Countries (estimated)	59,035
Total	377,550,805

Leases for other minerals.

1001. At the end of 1886, the following leases of Crown lands, conferring the privilege of working for minerals and metals other than gold, were in force in Victoria :—

LEASES FOR MINERALS AND METALS OTHER THAN GOLD, 1886.

Metals and Minerals.	Leases in force at end of 1886.	
	Number.	Area.
		acres.
Antimony	2	61
Coal	15	7,314
Copper and the ores of copper	6	506
Copper, galena, and coal	1	177
Copper, silver, and lead	1	38
Ironstone	1	320
Lead	2	241
Lignite	1	471
Slate	9	784
Tin and the ores of tin	6	415
Total	44	10,327

Leases for other minerals, 1885 and 1886.

1002. Whilst the leases in force at the end of 1886, as shown in the table, were fewer by 14, the area comprised therein was greater by 1,767 acres, than at the end of 1885. The leases for antimony mining fell from 13 to 2, those for copper mining from 9 to 6, and those for tin mining from 8 to 6; but the leases for coal mining increased from 11 to 15, those for lead mining from 1 to 2, and those for working slate quarries from 8 to 9.

Minerals other than gold raised.

1003. According to the estimate of the Mining Department, the following are the values of metals and minerals other than gold raised in Victoria from 1851 to the end of 1886:—

VALUE OF MINERALS AND METALS OTHER THAN GOLD, 1851 TO 1886.

Name.	Estimated Value.		
	1851 to 1885.	Year 1886.	Total.
	£	£	£
Silver	72,041	5,284	77,325*
Tin	362,974	90	363,064
Copper and copper ore	105,559	1,922	107,481
Antimony	169,295	...	169,295
Lead	5,326	...	5,326
Iron	15,636	...	15,636
Coal	17,399	107	17,506†
Lignite	3,238	304	3,542
Kaolin	7,444	...	7,444
Flagging	65,294	1,883	67,177
Slates	2,732	1,536	4,268
Gypsum	7	...	7
Magnesite	12	...	12
Ores, mineral earthy clays, &c. ...	10,901	...	10,901
Diamonds	108	...	108
Sapphires, &c.	630	...	630
Total	838,596	11,126	849,722

* Of late years the silver raised has been extracted from gold in the process of refinement at the Melbourne branch of the Royal Mint.

† The quantity of coal raised was 13,153 tons.

Miners for minerals other than gold.

1004. The following, according to the estimate of the Mining Department, is the number of men engaged in mining for various kinds of minerals or metals other than gold* at the end of 1886. The total shows a falling-off of 35 as compared with 1885 :—

MINERS FOR MINERALS OTHER THAN GOLD, 1886.

	Number of Miners.
Antimony	3
Coal	40
Copper	6
Granite	32
Infusorial earth	2
Kaolin	8
Lignite	5
Slate and flag	76
Tin	8
Total	180

Revenue from gold-fields.

1005. The revenue derived from the gold-fields amounted to £20,147 in 1884–5, and £17,055 in 1885–6. The amount in the latter year was made up of the following items :—

REVENUE FROM GOLD-FIELDS, 1885–6.

	£
Miners' rights	5,332
Business licences	320
Rents for leases of auriferous and mineral lands ...	9,058
„ mining on private property	1,475
Water-right and searching licences...	870
Total	17,055

State aid to mining companies, &c.

1006. Every year a sum is voted by Parliament to assist miners in prospecting operations, &c., the amount expended having been £11,191 in 1884-5, and £12,838 in 1885–6. And, in addition to this, various sums have been advanced from time to time from the revenue on loan to companies and individuals in order to assist in the development of the mining industry, of which only a small portion has been repaid, as will be seen by the subjoined statement :—

STATE AID TO MINING INDUSTRY.

	£
Amount advanced, 1875–6	1,500
„ „ 1877–8	250
„ „ 1878–9	18,800
„ „ 1879–80	500
Total	21,050
Amount repaid, 1880–81 ... ... £737	
„ „ 1881–2 ... ... 500 ...	1,237
Balance outstanding	19,813

* For number of gold miners, see paragraph 120 *ante*.

Diamond drills.

1007. In 1884–5, £17,115, and in 1885–6, £29,944, was expended on the purchase and working (including office expenses) of diamond drills, as against which no set-off whatever appears in the revenue returns of the latter, and only six shillings—"for the use of boring rods"—in those of the former, year.

Operations of diamond drills.

1008. Of the fourteen diamond drills belonging to the Mining Department, six were engaged in alluvial prospecting, one in quartz prospecting, two in coal prospecting, one in boring for water, and four were idle at the end of June, 1887. At the same date the two Tiffin water augers belonging to the Government were engaged in alluvial prospecting.

Mining on private property.

1009. An Act to legalize mining for gold and silver on private property,* and to compensate the owner and occupier thereof for the damage sustained by reason of the land being taken, or of their being deprived of possession of the surface thereof, in consequence of mining operations, came into force on the 24th November, 1884. Between that date and the 31st December, 1885, 318 leases were issued under it, covering an area of 63,896 acres; and during the year 1886 117 leases were issued under it, covering an area of 21,184 acres.

Value of mining produce.

1010. The estimated value of the produce raised from Victorian mines and quarries in 1886 is summarized as follows :—

VALUE OF MINING PRODUCE, 1886.

	£
Gold	2,660,784
Other metals and minerals	11,126
Stone from quarries	167,210
Total	£2,839,120

Agricultural pastoral, and mining produce.

1011. The estimated value of the agricultural, pastoral, and mining produce raised in Victoria, during each of the last twelve years, is given in the following table. It should be borne in mind that the prices of agricultural and pastoral produce, on which the value mainly depends, fluctuate from year to year.† In several of the years the value of the pastoral produce was greater than that of the other two industries combined :—

* The Mining on Private Property Act 1884 (48 Vict No 796).

† For prices of agricultural produce in different years, see table following paragraph 907 *ante*.

Value of Agricultural, Pastoral, and Mining Produce, 1874 to 1886.

Year.	Estimated Value of—			Total.
	Agricultural Produce.	Pastoral Produce.*	Mining Produce.†	
	£	£	£	£
1874 ...	4,410,436	9,840,562	4,740,679	18,991,677
1875 ...	4,835,894	9,541,551	4,475,876	18,853,321
1876 ...	5,574,239	10,069,570	3,949,135	19,592,948
1877 ...	5,792,898	8,652,471	3,322,264	17,767,633
1878 ...	4,912,745	8,360,265	3,211,990	16,485,000
1879 ...	5,875,313	6,375,965	3,136,527	15,387,805
1880 ...	5,395,021	9,855,800	3,397,661	18,648,482
1881 ...	5,893,874	8,684,218	3,533,658	18,111,750
1882 ...	6,439,972	9,297,812	3,681,245	19,419,029
1883 ...	7,372,143	10,203,914	3,357,252	20,933,309
1884 ...	6,565,527	9,887,229	3,228,738	19,681,494
1885 ...	7,118,388	9,049,679	3,091,244	19,259,311
1886 ...	7,260,735	8,911,336	2,839,120	19,011,191

Agricultural pastoral, mining, and manufacturing produce.

1012. The census taken on the 3rd April, 1881, enabled an approximate return to be made of the value of articles manufactured in the twelve months prior to that date, and the net result has already been stated to be £5,373,091.‡ On the assumption that the value of manufacturing produce has increased since the census in the same proportion as the number of establishments, or by 12¼ per cent., the value in 1886 would be £6,044,727, which amount being added to the figures in the lowest line of the last column in the above table, a total of the gross value of agricultural, pastoral, mining, and manufacturing produce will be obtained for that year, amounting in the aggregate to £25,055,918.

Patents.

1013. The patents for inventions applied for in 1886 numbered 485, or 26 more than in 1885, and a larger number than in any previous year. Since 1854 the total number of patents applied for has been 4,889.

Copyrights.

1014. The Victorian Copyright Act (33 Vict. No. 350) came into force in December, 1869. Copyrights for literary productions have been increasingly numerous during the last four years, during which period they averaged about 550 per annum; whereas prior to 1883 the largest number registered was 158. The following copyrights have been registered since the passing of the Act:—

* The pastoral produce referred to is that derived from the live stock kept by farmers as well as that kept by graziers and squatters.

† Including the value of stone raised from quarries.

‡ See paragraph 968 *ante*.

COPYRIGHTS, 1870 TO 1886.

Subject of Copyright.	Copyrights Registered.		
	Prior to 1886.	During 1886.	Total.
DESIGNS.			
Articles of manufacture, chiefly of—			
Metals	236	29	265
Wood, stone, cement, or plaster ...	50	1	51
Glass	9	...	9
Earthenware	3	3	6
Ivory, bone, papier-maché, &c. ...	36	2	38
Woven fabrics	15	...	15
Miscellaneous	16	1	17
LITERARY PRODUCTIONS.			
Literary works	2,297	408	2,705
Dramatic „	88	9	97
Musical „	87	8	95
WORKS OF ART.			
Paintings	5	...	5
Drawings	23	...	23
Engravings	997	65	1,062
Photographs	968	78	1,046
Sculpture	3	...	3
Total	4,833	604	5,437

Trade-marks.

1015. Provision for the registration of trade-marks was established under the Trade-marks Registration Act 1876 (40 Vict. No. 539), which came into operation on the 22nd September of that year. The registration of a person as the proprietor of a trade-mark is *primâ facie* evidence of his right to its exclusive use, subject to the provisions of the Act as to its connexion with the good-will of a business. From the period of the commencement of the Act to the end of 1886, 1,433 trade-marks were submitted for registration, and 1,013 were registered. During the year 1886, the number submitted was 243—or 48 more than in 1885, and the number registered 162—or 52 more than in 1885.

PART V.—ACCUMULATION.

Coins and accounts. Foreign moneys.

1016. The coins in circulation in Victoria are in all respects the same as those used in the United Kingdom. The accounts are kept in sterling money (£ s. d.).

1017. In dealing with moneys or money values taken from returns where foreign moneys have been quoted, such values, for the purpose